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MONTANA AIR MONITORING NETWORK REVIEW FOR 1995

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Compiled by:

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Helena, Montana 59620

July 1995

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MONTANA AIR MONITORING

NETWORK REVIEW

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MONTANA AIR MONITORING NETWORK REVIEW FOR 1995

1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) requires the Montana Department of Environmental Quality (MDEQ) to conduct an annual review of the State's ambient air monitoring network. The 1995 Network Review follows a format that was used for the 1993 Network Review.

EPA's requirements for an annual network review are set forth in 40 CFR 58.20(d). These requirements say that the State must conduct a review (1) to determine if the system meets the monitoring objectives defined in Appendix D of Part 58, and (2) to identify needed modifications of the network, such as the termination or relocation of unnecessary stations or the establishment of new stations which are necessary.

The Department is required by 40 CFR 58.25 to develop and implement an annual schedule modifying the network in order to eliminate any unnecessary stations or to correct any inadequacies indicated by the results of the annual review. The Department must consult with the Regional Administrator of EPA during the development of the schedule to modify the monitoring program. The final schedule and modifications are subject to the approval of the Regional Administrator.

This document and subsequent revisions are intended to satisfy those annual requirements.

1.1 NETWORK REVIEW PROCESS

In order to conduct this review, the monitoring objective and the spatial scale of representativeness of each station, existing or proposed, are first examined to determine whether they represent the air quality situation of the area. Background information, such as maps, climatological summaries, emission inventories, traffic counts, and modeling results are gathered and reviewed. The opinions of the Department staff, the personnel of the seven approved county air pollution agencies, as well as several other county health agencies, and staff members of EPA are also solicited.

In the 1979 Network Review, the Department designated each monitoring site in the State as either National Air Monitoring Station (NAMS), State and Local Air Monitoring Station (SLAMS), or Special Purpose Monitoring station (SPM). The NAMS/SLAMS network is designed to meet four basic monitoring objectives. The basic monitoring objectives are as follows:

1. To determine highest concentrations expected to occur in the area covered by the network.

2 To determine representative concentrations in areas of high population density.

3. To determine the impact on ambient pollution levels of significant sources or source categories.

4. To determine general background concentration levels.

The link between the basic monitoring objectives and the physical location of a particular monitoring site involves the concept of spatial scales of representativeness. The spatial scale is determined by the physical dimensions of the air parcel nearest a monitoring station throughout which the actual pollutant concentrations are reasonably similar. The goal in siting stations is to match the spatial scale represented by the sample of monitored air with a spatial scale most appropriate for the monitoring objective. Spatial scales of representativeness, as specified by EPA, are described below:

Microscale -	defines the concentrations in air volumes associated with area dimensions ranging from several meters up to about 100 meters.
Middle scale -	defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.
Neighborhood scale-	defines concentrations within some extended area of the city that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometer range.
Urban scale -	defines the overall, citywide conditions with dimensions on the order of 4 to 50 kilometers. This scale would usually require more than one site for definition.
Regional scale -	defines a rural area of reasonable homogeneous geography and extends from tens to hundreds of kilometers.
National and Global scales -	these measurement scales represent concentrations characterizing the nation and the globe as a whole.

In order to site a monitoring station properly, both the monitoring objective and the spatial scale of representativeness must be determined. Appropriate siting scales for the various monitoring objectives are listed below.

Monitoring Objective	Siting Scales
Highest Concentration	Micro, middle, neighborhood (sometimes urban)
Population	Neighborhood, urban
Source Impact	Micro, middle, neighborhood
Background	Neighborhood, regional

The goal in siting stations is to match correctly the spatial scale represented by the sample of monitored air with the spatial scale most appropriate for each station's monitoring objective. The use of this physical basis for locating stations allows for an objective approach, ensures compatibility among stations and provides a physical basis for the interpretation and application of data. The annual review process involves an examination of existing stations to evaluate their monitoring objectives and spatial scale. The results of this review will determine whether sites are deleted, added, or modified. Further details on network design can be found in Appendix D to 40 CFR 58.

1.2 GENERAL MONITORING NEEDS

Montana is a large state (147,138 square miles - fourth largest in the nation) but has a fairly small population (799,065 - 1990 census). Most of the Big Sky Country is pristine and altered little by man's hand. This is not to say that the State is not without its air quality problems. There are some places where air quality is a fragile resource.

1.2.1 PARTICULATE

Particulate matter is Montana's major air pollution problem and receives the highest priority from Department staff. The major sources of particulate are traffic on paved and unpaved roads, residential wood combustion (RWC), industrial activity, coal mines, and agricultural activity. For years the State was concerned with total suspended particulate (TSP) and sought ways to control its sources. As a result of the 1977 amendments to the Clean Air Act, several areas of the State were designated non-attainment of either the primary or secondary standard for TSP. The Department developed emission control plans as part of the State

Implementation Plan (SIP) to bring the areas into compliance. Although control strategies were implemented, they were sometimes inadequate to bring the area into compliance. In some cases, the source mix changed before the area was shown to be in compliance.

On July 31, 1987, the EPA promulgated new ambient air quality standards for particulate matter. The new standards changed the focus from larger particles (TSP) to smaller inhalable particles known as PM_{10} (particles with an aerodynamic diameter less than or equal to 10 microns). As a result of this standard, the EPA assigned various parts of Montana to one of three categories. Seven communities were identified as Group I areas (likely to violate the standards), six as Group II areas (may violate the standards) and the rest of the state was considered Group III. Group III areas are not necessarily in compliance since data may not be available for determination. Since this original classification, two of the Group II areas have exceeded the standard. They are called "Group II with exceedances" but are treated as Group I. Due to provisions in the Clean Air Act Amendments of 1990, all Group I areas and Group II areas with exceedances were designated non-attainment. The non-attainment provisions of the Clean Air Act mandate definite schedules to show attainment and provide for sanctions and federal oversight if the scheduled dates are not met.

The Department has been heavily involved with monitoring and planning activities and is developing area-wide control plans to bring non-attainment areas into compliance. In 1993, Montana had 11% of the nation's PM_{10} non-attainment areas. These PM_{10} non-attainment areas continue to require a significant commitment of resources for the SIP development process.

1.2.2 SULFUR DIOXIDE

Sulfur dioxide (SO_2) is another pollutant of concern in the State. There are only four areas in the State where SO_2 is an issue or a problem. These are the Billings/Laurel area, East Helena, Colstrip, and Great Falls. In all cases the sources for SO_2 are industrial point sources.

In the Great Falls area the primary source of SO_2 is the Montana Refining petroleum refinery. As the result of dispersion modeling performed in support of a permit application by Montana Refining potential exceedances of the SO_2 NAAQS were identified. The permit subsequently required SO_2 monitoring at the identified "hot spot". The Wire Mill Road site (AIRS# 30-013-2000) began reporting valid data on November 14, 1994.

In the Billings/Laurel area, the industrial sources of SO_2 include a coal-fired power plant, a coke-fired cogeneration power

plant, three oil refineries, a sugar beet processing facility and a sulfur recovery facility. The combined source mix contributes to some high ambient readings. In 1977, the Laurel area was designated non-attainment for SO_2. In December, 1977 a stipulation was signed with the Billings/Laurel industries and the State. This stipulation was incorporated into the SIP and was the tool to bring the area into compliance. Subsequent monitoring networks for SO_2 have shown the area to be in compliance with the National Ambient Air Quality Standards (NAAQS) but exceeding the Montana Ambient Air Quality Standards (MAAQS).

In 1987, the Montana legislature passed a bill changing the MAAQS to NAAQS for existing sources in the Billings/Laurel area. Following the session, a committee of the Billings/Laurel industries, the local chamber of commerce, and air pollution professionals formed to monitor and report on the area's air quality. The aim of the committee was to arrive at some solutions to the SO_2 problem of the area. Due to interest by the EPA and environmental groups, the State and Billings/Laurel industries conducted peak five-minute monitoring for SO_2 during the winter of 1990-91. An EPA contractor reviewed the peak five-minute data and its relationship to the hourly averages (peak-to-mean ratios). The results of this review were inconclusive. No additional peak five-minute monitoring for SO_2 is planned by the Billings/Laurel industries. However, the State continues to collect peak five-minute SO_2 data at its sites.

In 1990, EPA contracted with E. H. Pechan and Associates to develop a sulfur dioxide emission inventory for the Billings/Laurel area. The final report was submitted to EPA in 1991 and indicated a large difference between actual and potential sulfur dioxide emissions for most sources.

The City of Billings contracted with GeoResearch Inc. in 1990 to conduct a sulfur dioxide dispersion modeling study for the Billings area utilizing recently gathered meteorological data and the Pechan SO_2 emission inventory. The results of the dispersion modeling study predicted violations of the sulfur dioxide NAAQS at both the potential to emit and maximum actual emission rates.

In 1991, Billings Generation Inc. (now Yellowstone Energy Limited Partnership) submitted a permit application for construction and operation of a coke-fired cogeneration power facility located adjacent to the Exxon Refinery. Dispersion modeling performed in support of the permit application also predicted violations of the sulfur dioxide NAAQS in the Billings area as well as Prevention of Significant Deterioration increments. The permit for BGI was granted in March 1992, and required a reduction in sulfur dioxide at the Exxon Refinery.

In a March 4, 1993, letter to the Governor of Montana, EPA

stated that it determined the sulfur dioxide SIP for the Billings/Laurel area to be substantially inadequate and that it must be revised. The basis for the determination was the modeling results from the GeoResearch study and the Billings Generation Inc. permit application which predicted violations of the NAAQS for sulfur dioxide. In addition, EPA determined that the existing SIP did not provide enforceable methods to ensure compliance with the NAAQS.

In response to EPA's March 4, 1993 notification, MDEQ, in cooperation with the Billings area sulfur dioxide emitting industries, prepared a major revision to the Billings sulfur dioxide SIP. Although not yet complete, the revision provides for attainment and maintenance of the NAAQS. The SIP revision includes a detailed emission inventory, approved dispersion modeling, emission limitations, and methods to monitor compliance. The emission limitations and continuous emission monitors required by the SIP revision will be implemented by March 4, 1998.

In East Helena, the industrial source of SO_2 is a primary lead smelter. In 1977, the area was designated non-attainment for SO_2. The smelter installed an acid plant and modified stacks to reduce sulfur dioxide emissions. Data from monitors in the immediate vicinity of the smelter have shown exceedances but no violations of the NAAQS or MAAQS. There were some "violations" of the three-hour NAAQS in 1987 at an SO_2 site about four miles from the smelter near a cement manufacturing facility. A data review did not determine any cause for the high readings and it was difficult to determine if the readings were valid. No other violations have occurred since this time.

In April 1991, EPA notified the Department that the East Helena SO_2 SIP was inadequate, needed to be revised and submitted to EPA by May 1992. This request was driven by an inadequate GEP stack height analysis and requirements in the Clean Air Act Amendments of 1990. The East Helena SO_2 SIP revision for the annual and 24-hour NAAQS was approved by EPA on March 28, 1995. The East Helena SO_2 SIP for the 3-hour NAAQS will be completed in 1995.

In Colstrip, the industrial sources for SO_2 are four coal-fired power plants. Colstrip Units #1 and #2 were permitted in 1973 by the State. Unit #1 was commissioned in October 1975 and Unit #2 in August 1976. The units utilize wet scrubbers for SO_2 control with an efficiency of 70%.

In 1978, EPA issued a permit for Colstrip Units #3 and #4. EPA was the issuing agency because, at this time, the State had not been delegated PSD permitting authority. The issue of impact on the Northern Cheyenne PSD Class I area resulted in higher stacks and greater control efficiencies for Units #3 and #4. These units

use wet scrubbers with lime injection resulting in an SO_2 control efficiency of 90%.

The company maintains an ambient network around the facility and supports a tribal air monitoring program on the Northern Cheyenne reservation. The tribal network consists of three sites: Morning Star (30-087-0760), Garfield Peak (30-087-0761), and Badger Peak (30-087-0762). Data submitted by the company are very low and show no violations of the NAAQS or MAAQS.

1.2.3 LEAD

Lead (Pb) is a pollutant of concern in East Helena where the predominant source is the ASARCO primary lead smelter. The EPA promulgated ambient air quality standards for lead on October 5, 1978 and based on monitoring data, the East Helena area was determined to be in violation of the lead standard. The Department conducted extensive studies in the early 1980's to determine source apportionment. A SIP was developed and approved by the EPA in 1984 which contained control strategies expected to bring the area into compliance.

As of December 31, 1986, all the control strategies in the plan were implemented but ambient air monitoring data for 1987 and 1988 indicated that although lead levels decreased, they remained above the lead standard. As a result, the EPA notified Montana on October 1, 1988, that the East Helena lead SIP was inadequate.

From 1990 through the first half of 1995, the State, Asarco, American Chemet, and involved contractors conducted ambient monitoring, emission inventory estimations, source apportionment studies, meteorological data collection, and dispersion modeling in support of a second, or revised, SIP. The revised SIP was completed and submitted to EPA on August 16, 1995, and is expected to bring the East Helena area into attainment by the second quarter of 1997.

1.2.4 CARBON MONOXIDE

Carbon monoxide (CO) is a pollutant of concern in the larger communities in Montana. Currently, there are three CO non-attainment areas in Montana; these are Missoula, Great Falls and Billings. Automobile exhaust is the principal source of CO emissions in these communities. Other sources include industrial emissions as well as agricultural and forestry burning. In western Montana, including Missoula, residential wood combustion is a contributing source to ambient CO levels.

The Department, in cooperation with the various county air

pollution agencies, monitors for CO in Missoula, Great Falls and Billings. Most high concentrations occur in wintertime months due to stagnant weather conditions, cold temperatures, and poor fuel combustion from the various sources.

In 1989, the Department conducted and submitted CO emission inventories for the three non-attainment areas to EPA. The Department never received comments from EPA on the adequacy of these emission inventories. New draft emission inventories using 1990 as a base year were submitted to EPA in the summer of 1992. The Department received EPA's comments on these new inventories in December 1992. The final CO emission inventories for Billings and Missoula were submitted to EPA in July 1995. The Great Falls CO emission inventory is currently under review for completeness, and no firm date has been set for submittal to EPA.

Due to provisions in the Clean Air Act Amendments of 1990, Missoula was categorized as a "moderate" non-attainment area. This label was given because the design value was greater than 9.5 ppm for an eight hour period. The State submitted a revised SIP to EPA for Missoula, based on an oxygenated fuels program, on November 6, 1992. The oxygenated fuels program was started October 1, 1992. Billings and Great Falls were categorized as "unclassified" under the CAAA. This label was given because the design values for these communities were less than 9 ppm. The State plans to submit community-specific maintenance plans to EPA, for these two communities, at the time the re-designation requests are made.

1.2.5 OZONE

Ozone (O_3) is not a pollutant of major concern in Montana. All areas of the State are considered attainment for ozone. Unlike most other pollutants, O_3 is not emitted directly into the atmosphere but results from a complex photochemical reaction between volatile organic compounds (VOC), oxides of nitrogen (NOx), and solar radiation. Both VOC and Nox are emitted directly into the atmosphere from sources within the State. Since solar radiation is a major factor in O_3 production, O_3 concentrations are expected to peak in the summer months.

The Department conducted O_3 monitoring in Billings in 1988 and 1989, and is considering monitoring again near Billings from June through September, 1996. Billings is in an area where sources emit fairly large quantities of VOC and Nox. Billings also has hot summer days which may promote photochemical reactions. The data previously collected showed higher concentrations in the summer months but were all within the NAAQS.

1.2.6 NITROGEN DIOXIDE

Nitrogen dioxide (NO_2) is not a pollutant of concern in Montana. NO_2 is formed when nitric oxide (NO) is oxidized in ambient air. Oxides of nitrogen (NOx) is a term used to represent both NO_2 and NO. Emission inventories for point and area sources are usually expressed as NOx whereas the standard is for NO_2.

Point sources of NO or NO_2 in the State include coal-fired power plants, natural gas compressor stations, and other miscellaneous industries such as oil refineries and a kraft paper pulp mill. Mobile sources only include automobile tailpipe emissions.

The Department has done no monitoring for NO_2 in the last seven years. However, there has been some company monitoring for NO_2 in Colstrip and Missoula. These monitoring activities were required as conditions of PSD permits. Data submitted by the companies have shown no violations of the NAAQS or MAAQS.

1.2.7 AIR TOXICS

Air Toxics is a term that covers a far-ranging suite of hazardous substances, emitted in either gaseous or particulate phases. For many years the only air toxics measured in Montana were various heavy metals (e.g. lead, arsenic, cadmium, chromium, etc.) that are associated with particulate emissions from the minerals industry.

Sources of air toxics are as diverse and as numerous as the compounds themselves. Some point sources include the oil and gas industry, minerals extraction and processing, chemical and cement plants, and the wood products industry. Some area-wide sources include dry cleaners, gas stations, residential wood combustion and motor vehicle repair/refinishing facilities. Mobile sources include tailpipe emissions from automobiles, light and heavy-duty trucks, trains and airplanes.

The Department and Missoula County conducted a formaldehyde screening study, in Missoula, for the winter of 1993-94. The study showed that atmospheric formaldehyde concentrations in Missoula were low. There are potential screening studies, for various gaseous compounds, being discussed for the cities of Billings and Missoula. Completion of these studies is contingent on receiving both federal funds and spending authority from the Montana Legislature. Tentatively, the studies are scheduled for FY 1996.

1.3 NETWORK MONITORING HISTORY

From the inception of the Montana air quality program, the Department has developed and maintained an air monitoring network covering problem areas throughout the State. In the mid to late 1960's the Department used high volume samplers (hi-vols), dustfall jars, "Montana Boxes" (for fluoride), and sulfation plates to assess ambient air quality impacts from various sources. Initial program development selected monitoring locations based on field investigations, complaints, surveys, public interest and professional judgement of the staff.

In the early to mid-1970's, other monitoring devices were purchased. These included gas bubblers for SO_2 and NO_2, hi-vols with metal shelters (early versions were made of wood), and continuous analyzers, particularly for SO_2. During this time period, metals analyses began on hi-vol filters collected near smelting and mining activities.

From mid to late 1970's, the monitoring effort was refined as more sophisticated equipment became available and was deployed in the field. The State became involved in several special-purpose air pollution studies. The Department conducted the Montana Air Pollution Study (MAPS) in which extensive ambient air monitoring was performed in Anaconda, Butte, Billings and Missoula. The purpose of the study was to relate air pollution concentrations with measured human health effects within and between the different communities. The Department published several documents detailing the results of these studies.

At about the same time, the Department was also involved with investigative and background studies for the Flathead River Basin EIS (Kalispell, Columbia Falls, Polson, etc.), Poplar River project (by Scobey in northeast Montana), and energy development in eastern Montana (particularly in the Colstrip area).

As a result of the 1977 Amendments to the Clean Air Act, several areas in Montana were designated non-attainment for various NAAQS based on air quality data. Air quality monitoring increased in these areas as SIPs were being developed. Field sampling, emission inventory estimates and dispersion modeling allowed staff to focus on worst-case or maximum concentration sites. This applied mostly to CO and TSP non-attainment areas.

In 1978, the EPA promulgated a standard for lead (discussed in Section 1.2.3). Emphasis on lead monitoring and investigations to determine maximum concentration sites were conducted in the East Helena area as part of the original SIP. The present day network evolved from this study.

In 1981-82, an SO_2 surveillance network was established as a

condition of the 1977 Stipulation with the Billings/Laurel industries and the State. The network, at that time, contained eight SO_2 monitoring sites equipped with meteorological sensors and one upper air station. Industrial locations, topography, wind roses, emission estimates and past ambient data were used to situate the sites in maximum concentration locations or where the public may be affected.

In East Helena and Colstrip SO_2, meteorological, TSP, Nox, and Pb, monitoring networks were set up which essentially encircled the point sources. These multiple site networks allow adequate coverage (regardless of the wind direction) to determine maximum concentrations from the sources.

Quality control and assurance were always considered and performed as part of the data collection. The State's application of quality assurance, monitoring methodology, probe siting and network design was good, but not necessarily consistent with others in the nation.

At the request of the EPA Deputy Administrator, the Standing Air Monitoring Work Group (SAMWG) was formed in 1975. This group was made up of people representing state and local air pollution control agencies, EPA Headquarters and EPA regional offices. The purpose of the group was to critically review and evaluate current air monitoring activities, develop more effective air monitoring strategies, help correct identified problems, improve overall current operations and meet projected air monitoring goals.

Attempting to correct some air monitoring deficiencies, SAMWG developed a number of recommendations. These were promulgated in the Federal Register on May 10, 1979 and later updated on March 19, 1986 and July 1, 1987 (40 CFR Part 58).

The areas covered included:

Appendix A - Quality Assurance Requirements for State and Local Air Monitoring Stations.

Appendix B - Quality Assurance Requirements for Prevention of Significant Deterioration (PSD) Air Monitoring.

Appendix C - Ambient Air Quality Monitoring Methodology.

Appendix D - Network Design for State and Local Air Monitoring Stations and National Air Monitoring Stations.

Appendix E - Probe Siting Criteria for Ambient Air Quality Monitoring.

Appendix F - State and Local Air Monitoring Stations Air Quality Annual Report.

Appendix G - Uniform Air Quality Index and Daily Reporting.

Appendices D and E include network review, design and siting criteria. In the State's first network review (1979 Network Review) the Department designated each monitoring site in the State as either a National Air Monitoring Station (NAMS), State and Local Air Monitoring Station (SLAMS), or Special Purpose Monitoring station (SPM). The NAMS/SLAMS network was developed to meet the four basic monitoring objectives as listed in Section 1.1.

Table 1 at the end of this report gives a brief description of the state-wide ambient air monitoring network. The table lists all sites operated by the Department, county agencies and some operated by industrial concerns. The table provides a narrative regarding any changes or modifications to the sites. It also lists any proposed sites.

2.0 AMBIENT MONITORING NETWORK COVERAGE

This section addresses air quality problems and concerns in Montana. It is a continuation of discussions presented in Section 1.2 regarding specific pollutants and problem areas. Each of the EPA criteria pollutants is discussed regarding what data has been collected and the results. This section also contains the approach used by the Department to select and maintain site locations (continuation of Section 1.3) and the current air monitoring coverage. Each pollutant is discussed individually within specific sections for each Air Quality Control Region (AQCR) and county.

The review analyzes emissions, ambient, meteorological and other data related to specific sites or problem areas. The review is intended to show that existing monitoring sites should continue to operate because they still serve a purpose or are not needed and should be terminated. There are some instances where some sites may need to be modified in order to meet an intended purpose.

The 1995 Network Review contains a section dealing with meteorological data collection. The Department uses various weather instruments to measure parameters such as wind speed, wind direction, and temperature. These values are used in support of the analysis of air pollution data and to estimate pollutant concentration through dispersion models.

2.1 SULFUR DIOXIDE AREAS

As mentioned in Section 1.2.2, there are only four areas in the State where SO_2 is an issue or concern. These are the Billings/Laurel area in Yellowstone County, East Helena in Lewis & Clark County, Great Falls in Cascade County, and Colstrip in Rosebud County.

2.1.1 AQCR 140 - SOUTH CENTRAL MONTANA

2.1.1.1 YELLOWSTONE COUNTY

The sulfur dioxide issue in Yellowstone County has been with the air quality program since its inception in the mid to late 1960's. Early monitoring with sulfation plates and SO_2 analyzers showed that the Laurel area exceeded air quality standards and the Billings area measured elevated levels.

There are seven major sources in the Billings/Laurel area which emit SO_2. In Billings, these include Exxon (oil refinery), Conoco (oil refinery), Montana Power (coal-fired electric power generating facility), Western Sugar (sugar beet factory), Yellowstone Energy Limited Partnership (coke-fired cogeneration power plant), and Montana Sulphur & Chemical (sulfur recovery

facility). In Laurel, the major source is the Cenex oil refinery. Total SO_2 emissions for these sources for 1994 are estimated to be 26,124 tons/year.

Billings and Laurel are situated along the Yellowstone River Valley in south central Montana. The Yellowstone River Valley runs from southwest to northeast and is a predominant topographical influence on the airflow in the area. In Billings, there are cliffs or rimrocks located both north and south of the river which also tend to cause channeling. The distance between the north and south rims range from about one to five miles. In Laurel, the valley tends to be a little wider and the predominant high terrain is not close by. The cities of Billings and Laurel and all of the industrial sources are located along the river valley. Nearby terrain is often higher than the highest smoke stacks.

Wind roses in the area are reflective of the valley orientation. The predominant wind direction is from the SW with NE being the second most predominant direction. As with many areas in Montana, the area experiences inversions in the fall and winter months. This causes pollutants to become trapped and build up for extended periods. Inversion breakup occurring after sunrise causes built-up concentrations to lower to the ground and results in elevated readings measured at the monitoring stations. With frontal passage or higher wind speeds, winds can cause plumes to directly impact the ground resulting in high SO_2 concentrations.

In 1977, a stipulation was signed between the Department and the Billings/Laurel industries. The stipulation (requiring the industries to employ various control options) was the framework used to bring the area into compliance with ambient standards. In 1978, the Laurel area was designated non-attainment of the NAAQS for SO_2. The stipulation became part of the SIP and was approved by EPA. The 1977 stipulation also commissioned the Department (with industrial funding) to conduct an ambient air quality study to more fully describe the magnitude and geographical extent of the SO_2 concentrations. Another major goal of the study was to identify the relative source contributions from each industry.

In 1981-82, the Department (through a cooperative effort with the industries) designed and installed a sulfur dioxide monitoring network. The network consisted of eight SO_2 monitoring sites with meteorological monitors and an upper air site employing acoustic radar and pilot balloons. Six of the SO_2 sites were in Billings and two were in Laurel. Using this data, the Department attempted to validate a mathematical model that could predict concentrations from the various SO_2 sources. These attempts failed due to the following reasons: (1) a lack of good emissions data; (2) high concentrations caused by inversion breakup and direct plume impact (which the model could not handle); (3) over-prediction of plume rise by the model; and (4) receptors being so close to the sources

that small changes in wind direction could cause large differences in predicted versus actual concentrations. A novel approach was developed using directional analysis and mass emissions to characterize source contributions to the annual average at the worst-case receptor. This was useful but could not be applied as a predictive tool for short-term averages or at other receptors in the valley.

Following the 1981-82 study, the SO_2 monitoring network was scaled down in various stages until it reached a minimum early in 1987. As mentioned previously, eight SO_2 monitoring stations were in operation in 1982 during the SO_2 study. Following the conclusion of that study, the network was scaled down to four sites in 1983. These included Coburn Road (30-111-0066), Lockwood Park (30-111-0065), North Johnson Lane (30-111-0064) and Taft School (30-111-0064). It should be noted that no sites were kept in the Laurel area since the two sites in the 1981-82 study showed compliance with the NAAQS and MAAQS. The Department felt that greater emphasis was needed in the Billings/Lockwood area. In December 1983, the Taft School site was shut down to reduce the operator's workload in Billings. The network of three continued until June 1986 when a leasing problem caused the Department to shut down the North Johnson Lane site. In January 1987, the Department shut down its Lockwood Park site due to further cutbacks of personnel in the Billings office. At that time the network was reduced to a single site, Coburn Road, which has been the backbone of the network.

During 1984 to 1986, the Department explored rule-making options to bring the area into compliance with the SO_2 MAAQS. With no easy administrative solutions in sight, the Montana Legislature passed HB 534 in the 1987 session. This bill exempted the existing Billings/Laurel industries from meeting the MAAQS; they had only to meet the NAAQS (which was being met in Yellowstone County). Acknowledging the State's diminishing role in SO_2 monitoring in Billings, the legislature passed HB 878 which provided state funding for continued monitoring. With this funding the State was able to add one additional site, Scottish Rites (30-111-0073), to its network.

At the same time, the six Billings/Laurel industries combined resources to address SO_2 issues including monitoring. The Billings/Laurel Air Quality Technical Committee (BLAQTC) was formed in the spring of 1987. BLAQTC hired a contractor, purchased equipment and installed three SO_2 monitoring stations. Two of the sites were in Billings, Lockwood Park (30-111-1065) and Coulson Road (30-111-2004), and one was in Laurel, Laurel-BLAQTC (30-111-2004). The Department is a non-paying member of BLAQTC and works with the group on site selection, quality assurance, and ambient monitoring. By the end of 1987 the combined State and BLAQTC network consisted of five sites.

This monitoring network remained the same until October 1989. Upon agreement with the Department and BLAQTC, the Scottish Rite site was moved to Ponderosa School (30-111-0076) and the Coulson Road site was moved to Brickyard Lane (30-111-2005). The group felt that the old sites had served their purpose and that higher SO_2 concentrations might be found at the new sites. The Department documented the recent SO_2 monitoring sites in forms sent to EPA on January 5, 1990. EPA approved all of these sites in a letter dated May 14, 1990.

On June 30, 1992, the Ponderosa School site was shut down due to low readings. This action was approved by EPA in a letter dated June 22, 1992. The Ponderosa monitoring shelter was moved to the Coburn Road location, approximately 30 feet west of the existing air monitoring trailer. In an attempt to reduce vandalism, the instruments in the original Coburn Road trailer were moved to the new (i.e. old Ponderosa) shelter on October 1, 1992. A letter, along with photographs, documenting the move was sent to EPA on October 29, 1992. The old Coburn Road trailer was surplused.

In 1990, EPA hired a contractor to develop an SO_2 emission inventory for the Billings-Lockwood-Laurel area. The final report was submitted during February, 1991. Also in 1990, the City of Billings hired a contractor to perform a dispersion modeling study for the Billings-Lockwood-Laurel area utilizing recently gathered meteorological data and the updated emission inventory. The preliminary results of the dispersion modeling study indicated that potential violations of the SO_2 NAAQS existed using allowable emission rates as well as at actual emission levels. In some cases, the model predicted high SO_2 concentrations in areas where air monitoring had never been conducted. In July 1990, Billings Generation,Inc. (BGI) applied for a permit to construct a coke-fired, power generation facility adjacent to and utilizing petroleum coke from the Exxon Refinery. Dispersion modeling by BGI, required as part of the permitting process, indicated elevated SO_2 levels in the Lockwood area. The Department reviewed and refined the results of the modeling studies and concluded that additional SO_2 monitoring sites were needed.

At the location of the modeled maximum SO_2 "hot-spot" the Department installed an SO_2 monitor. The site, Sacrifice Cliff (30-111-0080), was approved by EPA effective May 19, 1993, and data collection began at that time. As a result of the permitting process, BGI (now Yellowstone Energy Limited Partnership) operates SO_2 monitors at two other modeled "hot-spots". The first one, Johnson Lane (30-111-2006), is located near Johnson Lane, south of I-90, and east of the existing Lockwood Park site. EPA approved the Johnson Lane site on March 7, 1994 with data collection starting on November 2, 1993. The second site, Pine Hills (30-111-2007), is located east of the I-90/I-94 junction, in the elevated terrain near the Pine Hill School. EPA approved the Pine Hills

site on March 7, 1994 with data collection starting on November 2, 1993.

In November 1988, the Department started collecting peak five-minute SO_2 averages for each hour. The EPA met with the Department and BLAQTC in February 1990 and offered two SO_2 analyzers to conduct peak monitoring in the range from 1 to 5 ppm. In September 1990, the Department and BLAQTC installed one of these monitors at the Coburn Road site and the other at the Lockwood Park site. These monitors collected peak five-minute data for six months until the end of March, 1991. Peak data was also collected at the other three sites with analyzers in the range of 0 to 1 ppm. After completion of the study, an EPA contractor reviewed and analyzed the data; the results were inconclusive. The Department continues to collect peak five-minute SO_2 data but none is collected at the industry sites. If frequent off-scale (i.e.<1.0 ppm) excursions are measured at the State-operated sites, the Department may decide to operate the SO_2 analyzers on a higher range. Currently this is not seriously being considered due to the lack of a short-term (i.e. five-minute) SO_2 NAAQS.

The Department feels the current network is adequate and several of the sites could be considered "maximum concentration sites" depending on wind and weather conditions. There are no plans to change the network in the near future except for the possible relocation of the Johnson Lane site further south along Johnson Lane into higher terrain.

2.1.2 AQCR 141 - CENTRAL MONTANA

2.1.2.1 CASCADE COUNTY

The SO_2 issue in the Great Falls area became apparent as the result of dispersion modeling performed in support of a permit application by Montana Refining. Potential exceedances of the SO_2 NAAQS were identified on high ground to the east of the Montana Refining facility. The permit subsequently required SO_2 monitoring at the identified "hot spot". The Wire Mill Road site (30-013-2000) began reporting valid data on November 14, 1994.

2.1.3 AQCR 142 - SOUTHWESTERN MONTANA

2.1.3.1 LEWIS & CLARK AND JEFFERSON COUNTIES

The sulfur dioxide issue in Lewis & Clark County (and Jefferson County) has been dealt with for a number of years. ASARCO's primary lead smelter is the only major point source for SO_2 in the East Helena area. In 1994, the ASARCO primary lead smelter emitted approximately 14746 tons/year of SO_2. The ASARCO

smelter is located next to the city of East Helena in the Helena Valley. The Helena Valley is a fairly wide valley (approximately 16 miles by 16 miles) and lies east of the Continental Divide. The valley is surrounded by mountains and, as with many areas in Montana, experiences inversions in the fall and winter months. East Helena is located at the southern end of the valley. Located east of the Continental Divide, the valley often has down-slope winds which ventilate the valley. Predominant wind directions are from the northwest through southwest. Monitoring by ASARCO in the early 1970's revealed exceedances of the SO_2 standard in the East Helena area. At that time ASARCO operated six monitoring sites in the East Helena area.

In 1975, the Montana SIP was revised setting forth SO_2 controls that provided for the attainment and maintenance of the NAAQS. The strategy limited the emission rate for the sinter plant and called for a 75% reduction of SO_2 on an annual basis. As a result, ASARCO installed a double contact acid plant with several modified stacks to reduce the SO_2 emissions in 1977.

Continued monitoring by ASARCO showed attainment of the SO_2 NAAQS at all sites except the Kennedy Park site (north of East Helena). Nighttime drainage winds from the south along the Prickly Pear Creek often cause emissions to drift to the north. This was the probable cause of high concentrations at the Kennedy Park monitor. In 1977, the area was designated non-attainment for SO_2. It was determined that emissions from shorter stacks serving the smelter's blast furnace were the cause of the exceedances. In 1978 and again in 1980, field tracer studies were conducted to determine good engineering practice (GEP) stack height for a proposed taller stack. These proposed changes were submitted as part of the SIP. In 1982, a new blast furnace baghouse stack was built. The taller stack allowed emissions to be dispersed at a higher elevation and eliminated high concentrations near ground level.

From 1974-1982, the Department operated three SO_2 sites adjacent to ASARCO's sites. After the acid plant was installed and the new blast furnace baghouse stack was built, ambient concentrations dropped dramatically and the State discontinued their sites, relying on ASARCO to provide SO_2 concentration data. In 1991 ASARCO operated six SO_2 monitoring stations in the East Helena area. They were as follows: Kennedy Park (30-049-0703), East Station (30-049-0711), Kleffner Road (30-049-0701), Water Tank (30-049-0702), Microwave Tower (30-043-0903), and Ash Grove Siding (30-043-0908).

Data from samplers in the immediate vicinity of the smelter have shown exceedances but no violations of the NAAQS or MAAQS. There were some "violations" of the three-hour NAAQS in 1987 at an SO_2 site about four miles from the smelter near a cement manufacturing facility. This was at the Highway 518 site (30-043-

0906). A data review did not determine any cause for the high readings and it was difficult to determine if the readings were valid. No other violations have occurred since this time.

In April 1991, EPA notified the Department that the East Helena SO_2 SIP was inadequate and needed to be revised and submitted to EPA by May 1992. This request was driven by an inadequate GEP stack height analysis and requirements in the Clean Air Act Amendments of 1990. In 1991, the Department received Asarco's SO_2 data from 1986 through 1989 on magnetic media and updated it to AIRS. The data falls short of proper QA procedures such as weekly zero/span checks and quarterly audits. As a result, the Department worked with Asarco to develop a QA plan and SOP documents for their SO_2 monitoring network. This package was submitted to EPA in August 1992 and approved by EPA on February 23, 1993.

In 1992 dispersion modeling was performed as part of the SIP revisions. That modeling indicated that potentially high ambient SO_2 levels were occurring in the elevated terrain to the southwest and southeast of the smelter, in Jefferson County. As a result the ambient SO_2 monitoring network was significantly revised in the spring of 1993. The current network consists of thirteen SO_2 sites, as follows: Microwave (30-043-0903), Ash Grove Siding (30-043-0908), Kleffner Road (30-049-0701), Water Tank (30-049-0702), Kennedy Park (30-049-0703), Top of Microwave Hill (30-043-0909), McClellan Creek Road #3 (30-043-0910), McClellan Creek Road #4 (30-043-0911), McClellan Creek Road #5 (30-043-0912), McClellan Creek Road #6 (30-043-0913), McClellan Creek Road #7 (30-043-0914), McClellan Creek Road #8 (30-043-0915), and McClellan Creek Road #9 (30-043-0916).

The current network is adequately distributed to show attainment and maintenance of the NAAQS and MAAQS. Once the SIP is approved, the control measures are implemented, and the ambient data is reviewed, the SO_2 monitoring network will be reduced to only those sites necessary to adequately monitor the maximum SO_2 impact areas. The East Helena SO_2 SIP revision for the annual and 24-hour NAAQS was approved by EPA on March 28, 1995. The East Helena SO_2 SIP for the 3-hour NAAQS will be completed in 1995.

2.1.4 AQCR 143 - EASTERN MONTANA

2.1.4.1 ROSEBUD COUNTY

The sulfur dioxide issue in Rosebud County centers around the Montana Power Company's four coal-fired power generating plants in Colstrip. Units #1 and #2 were permitted in 1973 by the State. Unit #1 was commissioned in October 1975 and Unit #2 in August 1976. The SO_2 control for these units are wet scrubbers with a 70%

control efficiency. In 1994, all the Colstrip units emitted approximately 12,828 tons/year of SO_2.

In 1978, a PSD permit was issued by the EPA for Colstrip Units #3 and #4. EPA was the issuing agency because, at that time, the State had not been delegated PSD permitting authority. However, the State did issue a normal construction and operating permit. The issue of impact on the Northern Cheyenne PSD Class I area resulted in higher stacks and greater control efficiencies for Units #3 and #4. The control for these units consists of wet scrubbers with lime injection and results in a 90% control efficiency.

The company maintains an ambient network around the facility and supports a tribal air monitoring program on the Northern Cheyenne reservation. Data submitted by the company show very low concentrations with no violations of the NAAQS or MAAQS. MPC operates three SO_2 sites. These are at MPC #1 (30-087-0701), MPC #2 (30-087-0702), and MPC #3 (30-087-0700). MPC #4 (30-087-0704) was shut down on June 30, 1992 and the termination was approved in an EPA-letter dated April 3, 1992.

The topography of the area is semi-rugged to rolling terrain. The area sometimes experiences temperature inversions but generally receives good airflow and is usually well ventilated.

The Colstrip area is considered attainment for SO_2. The Department is currently processing Montana Power's SO_2 data and updating it to AIRS. The Department is also obtaining precision and accuracy data. It is still imperative to keep collecting ambient SO_2 data with the current network. The current network is adequately distributed to track compliance with the NAAQS, MAAQS, and PSD increments.

2.2 NITROGEN DIOXIDE AREAS

As mentioned in Section 1.2.6, nitrogen dioxide is not a pollutant of concern in Montana. There are, however, two areas in the State where NO_2 is being (or was recently) monitored by companies as a permit condition. These areas are in Missoula and Colstrip.

2.2.1 AQCR 143 - EASTERN MONTANA

2.2.1.1 ROSEBUD COUNTY

The nitrogen dioxide issue in Rosebud County centers around Montana Power Company's four coal-fired power generating plants in Colstrip. Units #1 and #2 were permitted in 1973 by the State.

Unit #1 was commissioned in October 1975 and Unit #2 in August 1976. In 1978, a permit was issued by the EPA for Colstrip Units #3 and #4. EPA was the issuing agency because, at this time, the State had not been delegated PSD permitting authority. However, the State did issue a normal construction and operating permit. In 1994, the Colstrip units emitted approximately 29,889 tons/year of NO_2.

The company maintains an ambient network for NO_2 around the facility and supports a tribal air monitoring program on the Northern Cheyenne reservation. Data submitted by the company are very low and show no violations of the NAAQS or MAAQS. MPC operates three NO_2 sites. These are at MPC #1 (30-087-0701), MPC #2 (30-087-0702), and MPC #3 (30-087-0700). MPC #4 (30-087-0704) was shut down on June 30, 1992 and the termination was approved in an EPA-letter dated April 3, 1992.

The topography of the area is semi-rugged to rolling terrain. The area sometimes experiences temperature inversions but generally receives good airflow and is usually well ventilated.

The Colstrip area is considered attainment for NO_2. The Department has updated all of Montana Power's NO_2 data through the end of 1989 and will continue to update it to the present. The Department is also obtaining precision and accuracy data. It is still imperative to keep collecting ambient NO_2 data with the current network. The current network is adequately distributed to track compliance with the NAAQS and MAAQS.

2.2.2 AQCR 144 - NORTHWESTERN MONTANA

2.2.2.1 MISSOULA COUNTY

Missoula is situated at the confluence of the Bitterroot and Clark Fork Rivers. The Missoula urban area is home to nearly 61,700 persons. The Missoula Valley is similar to other western Montana valleys in that it is susceptible to temperature inversions in the fall and winter months. Wind speeds are generally calm (less than 10 mph) throughout the year.

The nitrogen dioxide issue in Missoula County centers around the Stone Container kraft pulp mill near Frenchtown. In May 1987, the company received a PSD permit from the State to burn petroleum coke in their four lime kilns. As a permit condition, Stone Container was required to operate one NO_2 monitoring site near their facility. To date, only one lime kiln has been converted to burn coke. The data collected and submitted to the State by Stone showed very low concentrations with no violations of the NAAQS or MAAQS. In 1994, the Stone Container facility emitted approximately 2183 tons/year of NO_2.

The NO_2 monitoring was discontinued, at Stone's request, on June 1, 1992 due to low ambient concentrations. The monitoring will resume when another lime kiln is converted to burn coke. The ambient data showed that the area remains in compliance with the NAAQS and MAAQS.

2.3 CARBON MONOXIDE AREAS

Carbon monoxide is a pollutant of concern in the larger communities in Montana. Currently, Missoula is categorized as non-attainment for carbon monoxide. Billings and Great Falls are categorized as unclassified for carbon monoxide attainment. Automobile exhaust is the principal source of CO emissions in these communities. Other sources include industrial emissions as well as agricultural and forestry burning. In some western Montana valleys, residential wood combustion is a major contributing source.

As part of the network review process, the Department looked at other communities where CO may be a problem. These are discussed in the following sections.

2.3.1 AQCR 140 - SOUTH CENTRAL MONTANA

2.3.1.1 YELLOWSTONE COUNTY

In Yellowstone County, the city of Billings is situated along the Yellowstone River Valley. The Yellowstone River Valley runs from southwest to northeast and is a predominant topographical influence on the airflow in the area. Located both to the north and south of the river are cliffs or rimrocks which tend to cause channeling. The distance between rims is about one mile wide where the downtown area is located.

In 1978, the Billings downtown area was designated non-attainment for CO due to high readings at the 27th & Montana monitoring site (30-111-0053). Automobile exhaust was thought to be the principal source of CO. As part of the SIP development process, a model predicted that an area along Main Street (formerly Exposition Drive) had the highest potential to exceed the standards. The plan for the attainment of the 8-hour standard predicted that modification to the Main Street-First Avenue North intersection would achieve the standard.

Data collected at the Metra Parking Lot site (30-111-0061) during the two years following the modifications to Main Street (1985-86) indicated compliance with the standard. Upon EPA's review of the redesignation request, the Department was informed that (1) the data collected did not meet the completeness

requirement, (2) the site should be relocated closer to the nearest traffic lane at a maximum concentration microscale site, and (3) a redesignation request would have to show attainment/maintenance at all locations.

Attempts to locate a new EPA-approved site followed a somewhat convoluted path. EPA wanted a site just north of the 4th Avenue entrance to the Metra Parking Lot. Permission could not be obtained mostly due to traffic and safety concerns. A site was temporarily located near the Main Street-6th Avenue North intersection (30-111-0074), but soon after it started operation, water pipes and valves were unearthed below the monitoring shelter. It was decided that this site was impractical considering future access to the same water valves.

After a lengthy approval process, EPA granted permission to locate a microscale CO monitor just south of the 4th Avenue North entrance to the Metra Parking Lot (30-111-0075). Carbon monoxide data at this site has been collected since October 1988 and has not recorded any exceedances of the MAAQS or NAAQS.

In order to show attainment and maintenance of the standard at all locations, Yellowstone County Air Pollution Control conducted CO grab sampling studies during the winters of 1988-89 and 1989-90, and a CO saturation study in December of 1991. The last study identified two maximum CO concentration areas; the rapidly growing west side along 24th Street West and the downtown business district along North 27th Street. As a result of the EPA-approved saturation study the Department and the Yellowstone County Air Pollution Control program installed two new CO monitoring sites in Billings during the fall of 1992 and terminated the Metra CO monitoring site (30-111-0075).

The downtown site, Diamond Parking (30-111-0078), was located on North 27th Street, between 3rd & 4th Avenues. It began operation in November of 1992 and was approved by EPA in a letter dated April 2, 1993. The Diamond Parking Lot site was discontinued on April 8, 1994, and a new site (NorWest, 30-111-0081) was established, across 27th Street and one block south, in the same area. The NorWest site was approved by EPA and started data collection on April 25, 1994. The west side site, Mount Olive (30-111-0079), is located on 24th Street West, just north of Central Avenue. It also began operation in November of 1992 and it was approved by EPA in a letter dated February 5, 1993.

Due to provisions in the Clean Air Act Amendments of 1990, Billings was reclassified as "unclassified" under the CAAA. This label was given because the design value for this community was less than 9 ppm. The State is required to submit community-specific maintenance plans to EPA when the redesignation request is made. At that time the Department will review the data to

determine which site records the maximum CO concentrations and only operate that one site for maintenance purposes.

2.3.2 AQCR 141 - CENTRAL MONTANA

2.3.2.1 CASCADE COUNTY

In Great Falls, a corridor along 10th Avenue South was designated non-attainment for CO in September, 1980 due to high readings at the Midas Muffler site (30-013-0015) located at 10th Avenue South and 9th Street. This particular site ran from 1977 until 1979 when a leasing problem forced the State to relocate the monitor about twelve blocks east at the Great Falls Federal site (30-013-0021). This site operated until 1983 when the monitoring trailer was again moved to the Pardis Clinic site (30-013-1023). The Pardis site was located one block west and across the street from the original Midas Muffler site. The Department anticipated higher concentrations at this site because it was located at a lower elevation and the traffic volume on this section of 10th Avenue South was higher.

Sampling at the Pardis Clinic site began in November 1983 and was established as a middle scale site. In May 1987, and again in August 1987, EPA informed the State that "in order to determine whether an area is attaining the NAAQS, a control agency must locate at least one monitoring station in the area of maximum concentration." EPA interprets such a location for CO to be a microscale site. On November 4, 1987, the Department moved the probe to be within microscale siting. The site remained microscale until November 16, 1988, when the site was moved back to middle scale at the landowner's request.

Carbon monoxide data collected at the Pardis Clinic site showed a few exceedances of the 8-hour standard from 1986-88. A review of the exceedances showed that most occurred in the evening hours with very light to calm winds. In 1983, a staff review of data showed that area-wide sources could be contributing to the elevated readings.

Since microscale siting at the Pardis Clinic could not be continued, the Department moved the CO trailer about a block west on 10th Avenue South at the Skyway Conoco site (30-013-1025) on November 9, 1989. This site modification request was approved by EPA in a letter dated November 2, 1989. This site is currently in operation and is microscale.

The Department and Cascade County conducted a saturation study in January 1992 in an attempt to determine a maximum concentration CO site in Great Falls. The results from this study were generally inconclusive. There was one location a few blocks east of the

existing Skyway Conoco site that had slightly higher CO concentrations. However, most of the concentrations recorded during the study were low due to windy conditions that resulted in excellent atmospheric ventilation. The dispersion conditions during the study are typical of those present in Great Falls most of the year. Attempts by Cascade County personnel to obtain permission to relocate the CO site a few blocks to the east on 10th Avenue South failed. The Department is not concerned about this failure because the differences in the CO concentrations measured during the saturation study were statistically insignificant. As a result the Department is convinced that the Skyway Conoco site is located in the area of maximum CO concentrations and there are no plans to relocate the site or establish a second one.

Automobile exhaust was originally thought to be the principal source of CO in Great Falls. As part of the SIP development process, a model predicted that several intersections along 10th Avenue South could have the potential for violating the NAAQS for CO. In the plan submitted to EPA, CO standards could probably be achieved by 1985 or 1986 with EPA-mandated emission standards for automobiles, increased traffic speed along 10th Ave. South, improved traffic light synchronization, a widening of a bridge, a mass transit system and reductions at the Montana Refining Company.

Due to the continued noncompliance at the monitoring sites on 10th Avenue South, EPA told the State that the SIP is inadequate and will need to be redone. As part of this rewrite, CO emission inventory data was submitted to EPA in December 1989. The Department never received comments from EPA on the adequacy of this emission inventory. A new emission inventory using 1990 as a base year was submitted to EPA in the summer of 1992; EPA's comments on this inventory were received in December 1992. The Department has not set a firm date to submit the finalized inventory to EPA.

Due to provisions in the Clean Air Act Amendments of 1990, Great Falls was categorized as "unclassified" under the CAAA. This label was given because the design value for this community was less than 9 ppm. The State is required to submit community-specific maintenance plans to EPA at the time of the redesignation request. EPA mandated tailpipe controls, along with 0% population growth since 1980 and only 1% growth since 1992, should assist with redesignation.

2.3.3 AQCR 142 - SOUTHWESTERN MONTANA

2.3.3.1 SILVER BOW COUNTY

Butte, located in Silver Bow County, was suggested by staff as a possible location for a carbon monoxide monitoring site. The area is currently unclassified/attainment for CO. In 1987-88, a

SPM site for CO was operated on Continental Drive (30-093-0022) near the main entrance to the Berkeley Pit and within a few blocks of the Department's PM_{10} site at Greeley School (30-093-0005). The highest 8-hour reading was 9.1 ppm. In 1978-79, the Department operated a site at Hebgen Park (30-093-0018). The highest 8-hour concentration was 7.8 ppm. Neither site would be considered a maximum concentration site for CO.

Butte has an urban population of approximately 32,000 persons. The elevation averages 5300 feet with the Continental Divide surrounding the city on three sides. Wind speeds in Butte are usually calm and the area is susceptible to severe temperature inversions in the fall and winter. The old part of Butte is built on a hillside next to the Berkeley Pit. The new part of town is built on the "flats" to the south and is where much of the strip development is located. Harrison Avenue is a street that links uptown with the flats. Interstate 90 is a major east/west highway that slices through the lower part of town with off-ramps to Harrison Avenue.

The Department proposes a CO saturation study in Butte for about two weeks in mid-December 1995.

2.3.4 AQCR 144 - NORTHWESTERN MONTANA

2.3.4.1 FLATHEAD COUNTY

The Department conducted a CO saturation study in Kalispell from December 16, 1994, to January 2, 1995. Kalispell was suggested by staff as a possible city for carbon monoxide monitoring based on the saturation study results, a review of traffic counts, and projected growth in the area. The area is currently unclassified/attainment for CO. There has been no previous CO monitoring in Kalispell.

Kalispell has an urban population of approximately 31,600 persons although the majority of the 67,300 county residents live within a 15 mile radius of the city. Kalispell serves as a business, service and shopping center for the greater Flathead Valley. The Flathead Valley is located west of the continental divide and is a fairly wide (14 miles across) valley. The climate is mild with calm or low wind speeds. Like many communities in the western part of the State, the area is susceptible to temperature inversions in the fall and winter. Two major highways serve Kalispell. These are Highway 2 which is an east/west route and Highway 93 which is a north/south route. These two highways meet at a stoplight in Kalispell at Main Street (Highway 93) and Idaho Avenue (Highway 2). The queuing time for this intersection can be quite lengthy, allowing motor vehicles to idle for extended periods, emitting large quantities of CO.

Residential wood combustion in Kalispell is common as much of the community has fairly easy access to wood from local forests. The CO emitted by traffic at the Main Street-Idaho Avenue intersection combined with the area-wide contribution from wood stoves has the potential to create elevated concentrations of CO.

The Department proposes to establish a CO site near the Main Street-Idaho Avenue intersection. Exact siting would involve an on-site inspection of the area, review of traffic counts and a review of the CO saturation study. Appropriate network modification forms will be filled out and submitted to the EPA for approval. The establishment of this site depends upon resources and equipment availability.

2.3.4.2 MISSOULA COUNTY

The entire city of Missoula was designated non-attainment for CO based on high concentrations recorded at the intersection of Brooks (U.S. 93), Russell and South. This intersection and the monitoring site are known as Malfunction Junction (30-063-0005). Exceedances of the 8-hour CO standard have also been observed at other air monitoring sites in Missoula: Lions Park (30-063-0019), in the downtown area on Higgins Avenue (30-063-0023), and Boyd Park (30-063-0024).

Missoula is situated at the confluence of the Bitterroot and Clark Fork Rivers in western Montana. The city has a population of approximately 45,000 persons but the urban area contains approximately 61,700. The Missoula Valley is fairly narrow (approximately 6 miles across) and similar to other western Montana valleys in that it is very susceptible to temperature inversions in the fall and winter months. Wind speeds are calm or low throughout the year and allow concentrations to build up.

A SIP was submitted to EPA which detailed a plan to bring the area into compliance. The plan called for the reconstruction of the Malfunction Junction intersection including limited turn lanes, timing sequences for the traffic lights and increased vehicle speeds. Additional reconstruction was performed on a portion of Highway 93 between Mount Avenue and Reserve Street. The reconstruction was completed in late 1985.

The Malfunction Junction site was temporarily shut down in July 1983 and reactivated in January 1986 after the completion of the reconstruction. The CO data collected from 1986 to 1992 showed some exceedances of the 8-hour CO standard. There are no exceedances since October 1992 when an oxygenated fuels program was implemented.

A second CO site in Missoula has operated at Boyd Park in the

southern part of the city since 1981. It is suspected that most emissions at this site are from residential wood combustion although CO from traffic may also be a contributing factor. In May 1991, the Department made a request to EPA to permanently shut down the site. The site had not measured an 8-hour CO exceedance since 1987 and the site was in the same general area as the maximum concentration site of Malfunction Junction.

EPA responded to the Department's request in a letter dated August 8, 1991. They disapproved of the proposal to permanently shut down the Boyd Park CO site. They needed additional justification (documentation) that Malfunction Junction is the maximum CO location and that there is no need for a second CO monitoring site in Missoula (i.e., that Malfunction Junction can adequately address all contributing sources to the CO problem in Missoula, whether they are mobile, point or area sources). The Department provided EPA with additional justification in a letter dated September 16, 1991. EPA then agreed to the Boyd Park shut down request in a letter dated October 4, 1991. The Boyd Park CO analyzer was never re-started since it had been shut down for the summer season on April 1, 1991.

During December 1992, the Department and Missoula County conducted a CO saturation study in Missoula. The final report was submitted to EPA on April 20, 1993. EPA's response, in a letter dated May 24, 1993, states, "We agree, the study confirms the Malfunction Junction intersection has the highest carbon monoxide levels in the Missoula area and the existing monitoring station know as "Malfunction Junction" is the maximum concentration monitoring station."

EPA and the Department were concerned that area-wide sources such as residential wood combustion combined with traffic emissions contribute to elevated CO levels at other areas in Missoula. In July 1988, EPA notified the Department that the Missoula CO SIP was substantially inadequate. The Department and Missoula County prepared a new emission inventory and submitted it to EPA in December 1989. The Department never received comments from EPA on the adequacy of this emission inventory. A new emission inventory using 1990 as a base year was submitted to EPA on November 13, 1992; EPA's comments on this inventory were received in December 1992. The Department expects to submit the finalized inventory to EPA by July 19, 1995. Additional controls for CO in Missoula were gained by implementing an oxygenated fuels program on October 1, 1992.

Due to provisions in the Clean Air Act Amendments of 1990, Missoula was categorized as a "moderate" non-attainment area. This label was given because the design value was greater than 9.5 ppm for an eight hour period. The State submitted a SIP revision, as a result of the oxygenated fuels program, to EPA on November 6,

1992. The Department has no plans for a second CO monitoring site in Missoula and intends to operate only the Malfunction Junction site for maintenance purposes.

2.4 OZONE AREAS

Ozone (O_3) is not a pollutant of major concern in Montana. All areas of the State are considered attainment for ozone. Unlike most other pollutants, O_3 is not emitted directly into the atmosphere but results from a complex photochemical reaction between volatile organic compounds (VOC), oxides of nitrogen (NOx), and solar radiation. Both VOC and NOx are emitted directly into the atmosphere from sources within the State. Since solar radiation is a major factor in O_3 production, O_3 concentrations peak in the summer months.

2.4.1 AQCR 140 - SOUTH CENTRAL MONTANA

2.4.1.1 YELLOWSTONE COUNTY

The Department conducted O_3 monitoring in Billings in 1988 and 1989 at the Scottish Rites monitoring site (30-111-0073) in the city center. Billings is in an area where sources emit fairly large quantities of VOC and NOx. Billings is also an area where hot summer days may promote photochemical reactions. EPA defines the O_3 monitoring season for Montana as June 1 to September 30. Ozone data collected at the Scottish Rites site showed higher concentrations in the summer months but all were within the NAAQS.

The Scottish Rites site (which also monitored for SO_2) was discontinued in September 1989 and moved to another location. Since the O_3 readings were low and resources were needed for other purposes, the Department discontinued O_3 monitoring.

The staff has proposed O_3 monitoring just east of Billings from June through September, starting in 1996. The establishment of an O_3 monitoring site near Billings is dependant on monetary and personnel resources and equipment availability.

2.5 LEAD AREAS

2.5.1 AQCR 142 - SOUTHWESTERN MONTANA

2.5.1.1 LEWIS & CLARK COUNTY

Lead is a pollutant of concern in East Helena where the predominant source is the ASARCO primary lead smelter. After promulgation of ambient air quality standards for lead, the East

Helena area violated the lead standard based on ambient monitoring. The Department then conducted extensive source apportionment studies in the early 1980's. These studies included the chemical mass balance technique and the results indicated that re-entrained road dust and soil, fugitive ore concentrates, zinc oxide material and blast furnace upsets were the primary lead sources.

A SIP was developed and approved by EPA in 1984 which contained control strategies designed to bring the area into compliance. As of December 31, 1986, all the control strategies in the plan were implemented but ambient air monitoring data for 1987 and 1988 indicated that although lead levels decreased, they still remained above the standard. As a result, EPA notified Montana on October 1, 1988, that the East Helena lead SIP was inadequate. During the last half of 1990 and the first half of 1991, the State and the involved companies conducted ambient monitoring, emission inventory estimations, source apportionment studies, meteorological data collection, and dispersion modeling in support of a new SIP. On August 2, 1993, EPA made a finding that Montana had failed to submit a lead SIP by July 6, 1993, for the East Helena lead non-attainment area. Therefore, sanctions were to be imposed 18 months after the finding (February 2, 1995), unless the State submitted a revised SIP and EPA determined that the revised SIP was complete within that time frame. On February 2, 1995, EPA imposed 2:1 emission offset sanctions in the East Helena lead non-attainment area. The Department anticipates submitting a lead SIP to EPA by the end of August 1995.

Recent TSP/Pb network modifications include the following: The Microwave (30-043-0903) TSP/Pb background site was officially shut down on June 30, 1991. The Hadfield site (30-049-0719) was shut down on April 1, 1993, and the equipment moved to the current Prickly Pear site (30-049-0727). Prickly Pear is a site located directly north of the ASARCO smelter, across U.S. Highway 12, west of Prickly Pear Creek on Pacific Street. This site is near the modeled maximum Pb concentration site (modeling conducted with the assumption that all the SIP control strategies have been implemented). Prickly Pear started data collection as a collocated site in November 1993.

The current monitoring network consists of the following four sites: Firehall (30-049-0714), Dartman Field (30-049-0724), Old Railroad (30-049-0726), and Prickly Pear Creek (30-049-0727). Currently, all sites run at a 1-in-6 schedule except Firehall, which runs on a 1-in-2 schedule. On July 1, 1995, Cadmium, Arsenic, Nickel, and Chromium analysis began on the filters collected at Firehall.

2.6 PARTICULATE (PM_{10} AND TSP) AREAS

Particulate matter is the largest air pollution problem in the State and has historically received the highest priority from the Department. In some portions of the State, there is a total suspended particulate (TSP) record dating back to 1970. From this long historical data base the Department has learned many of the significant factors that contribute to particulate pollution in Montana. It is clear that the most important factors are a combination of meteorology and topography. Mountain valleys and frequent temperature inversions often lead to particulate being trapped close to their emission source for days at a time. The ensuing particulate matter build-up has caused many communities with relatively small particulate emission rates to exceed federal particulate standards.

In the 1970's and 1980's, a statewide TSP network was run by the Department. Data from this network proved that very few areas in the eastern portion of the State had concentrations close to primary or secondary TSP standards. Consequently, the majority of the Department's present particulate monitoring is conducted in the State's mountainous western region.

TSP particulate monitoring evolved into sampling for particulate matter less than 10 microns in diameter (PM_{10}) because of promulgation of the 1987 ambient air quality standard. After promulgation of the new PM_{10} standards the EPA used PM_{10} to TSP ratios and statistics to determine if areas had a probability of exceeding the PM_{10} standards. Areas were then designated as Group I, II, or III based on the EPA calculations where there existed greater than 95%, 20-95%, or less than 20% chance, respectively, of exceeding the new PM_{10} standard.

PM_{10} monitoring began in the summer of 1985 at many of the current sites. The inlets initially used had a "bounce off" problem where large particles were allowed through the inlet thereby biasing some PM_{10} concentrations higher. To remedy the problem, all inlets in the network were retrofit with a factory-supplied, greased impaction shim during the summer of 1987.

Particulate emission sources in Montana are diverse. Point sources typically can be placed into one of the following categories: coal and ore mining, non-metallic mineral processing (i.e., talc, lime, and phosphate mines), wood products industries, slash burning, and wood and coal fired power generation. Although some of these sources are significant (Appendix A), they are typically located in relatively remote areas where the threat to public health is minimal. Of greater concern in the State are area sources. Examples of area sources include re-entrained road dust, residential wood combustion, and tailpipe emissions. These sources in combination with localized point sources are the cause for most

of the PM_{10} problems in Montana.

The following subsections present brief descriptions of the particulate monitoring sites which have been operated or administered by the Department. Included in the descriptions are summaries of the sources that have impacted the areas, relevant topographic and meteorological information, discussions of the data collected, and future recommendations for the sites.

2.6.1 AQCR 140 - SOUTH CENTRAL MONTANA

2.6.1.1 FERGUS COUNTY

Fergus County is located in central Montana and contains several outlying frontal ranges of the Rocky Mountains including the Snowy Mountains, Judith Mountains, and Moccasin Mountains. The major city in Fergus County is Lewistown (population approx. 6,000). The topography around Lewistown is similar to a mountain valley with frequent temperature inversions which often lead to particulates being trapped close to their emission source for days at a time. The major sources of particulate include re-entrained road dust and residential wood combustion.

TSP monitoring was conducted in Lewistown from January 1980 through December 1983 and no exceedances of the standard were found. Since Lewistown is topographically similar to Western Montana communities with PM_{10} problems and no particulate monitoring has been performed for over ten years, the staff is proposing PM_{10} monitoring in Lewistown beginning in 1995.

2.6.1.2 YELLOWSTONE COUNTY

Yellowstone County is located in south central Montana and is bisected by the Yellowstone River. The major cities in the County are Billings (population approximately 82,000) and Laurel (population approximately 5,700) which are located along the Yellowstone River Valley floor. On the north and south edges of the valley, the rimrocks rise abruptly above the valley floor. The valley is approximately 12 miles wide in Laurel, but on the eastern edge of Billings, the rimrocks form a constriction that is only about one mile wide. The prevailing winds are from the southwest and are channeled down the valley. The winds are usually responsible for good dispersion, but occasional temperature inversions do occur.

Particulate monitoring has been conducted in Yellowstone County since 1971. Initial sampling used the standard hi-vol samplers for TSP and although there have been several TSP sites in Yellowstone County, only those in the central part of Billings

showed elevated concentrations.

After promulgation of the new PM_{10} standards Billings and Laurel were designated as Group III areas.

PM_{10} monitoring in Billings started in December 1986 and has continued until present at various locations throughout the city. There has never been a single recorded PM_{10} exceedance at any Billings site nor is it anticipated that the PM_{10} standard will be exceeded under current control strategies.

Since the 1993 Network Review the following changes have taken place in the Billings area: Sampling at the Diamond Parking site (30-111-0078) ran from November 1992 until April 1994 when the site was shut down due to site lease problems. The site was moved two blocks south and is currently operating at the NorWest site (30-111-0081). On the west end of Billings, Yellowstone County Air Pollution Control (YCAPC) developed a new PM_{10} site at the Mount Olive Lutheran Church parking lot. The Mount Olive site (30-111-0079) started collecting data in July 1994.

Both of the current Billings PM_{10} sites have shown low values since start-up. Further PM_{10} monitoring may be useful in some of the suburban areas surrounding Billings that may have more substantial PM_{10} problems. One proposed site is to be co-located with a SO_2 monitor in Lockwood Park (30-111-1065).

2.6.2 AQCR 141 - NORTH CENTRAL MONTANA

2.6.2.1 CASCADE COUNTY

Cascade County is located in central Montana and at the southern end of AQCR 141. Great Falls is Montana's second largest city with a population of 55,000 and is located at the confluence of the Missouri and Sun Rivers. Topography plays an important part in the climate of Great Falls. The municipal airport and National Weather Service office are located on a plateau about 200 feet higher than Great Falls proper, which contributes to marked temperature differences. The Continental Divide to the west, and the Big Belt and Little Belt Ranges to the south are primary factors in producing the frequent wintertime chinook winds observed in this part of Montana. The prevalence of chinook winds creates a relatively high average wind speed (12.7 mph) which promotes good ventilation in the community most of the time.

Particulate monitoring has been conducted in Cascade County since 1971. Initial sampling used standard hi-vol TSP samplers. There have been several TSP sites in Cascade County but only those in the central part of Great Falls and Black Eagle had elevated concentrations.

After promulgation of the new PM_{10} standards Great Falls was designated as a Group III area.

In 1985, PM_{10} monitoring started at the Downtown site (30-013-0017) in Great Falls and the site continued until 1988. The Department reviewed the TSP and PM_{10} data and determined that the Fire Station (30-013-0009) site was the maximum concentration site for Great Falls. The Department moved the PM_{10} sampler from the Downtown site to the Fire Station in July 1988. The samplers were run collocated on a 1-in-6 schedule until the Department assumed responsibility for the samplers on October 1, 1991. The sampling frequency was then increased to 1-in-3 (without collocation). PM_{10} concentrations to date have been consistently low.

2.6.3 AQCR 142 - SOUTHWESTERN MONTANA

2.6.3.1 BEAVERHEAD COUNTY

The principal PM_{10} air quality concern in Beaverhead County centers around industrial activity six miles south of Dillon around the Pfizer talc plant. Dillon is located near the center of the Beaverhead Valley. The valley floor is about 5400 feet in elevation with relatively low (6700 feet) rolling mountains located ten miles to the west. Although higher mountain ranges such as the Pioneer, Snow Crest and Ruby are nearby, the Dillon area is open and does experience good ventilation.

In September 1984, a monitoring site for TSP was established at the Beaverhead County Courthouse (30-001-0001). This site operated for two years until June 1986. The monitoring data showed relatively low readings and continued monitoring was not warranted.

Complaint investigations and inspections by Department personnel have indicated that there might be air quality concerns around the industrial area south of Dillon. Depending on resources and equipment availability, the Department may install a PM_{10} sampler in the vicinity of the previously mentioned industry.

2.6.3.2 BROADWATER COUNTY

Broadwater County is located in west central Montana. The east boundary of the County is on the crest of the Big Belt Mountains. Broadwater County is sparsely populated (approximately 3,700) with most of the county dominated by dry land farming. The Missouri River dissects Broadwater County. Canyon Ferry Reservoir on the Missouri River is the dominant feature in the county. The PM_{10} area of most concern in Broadwater County centers around the city of Townsend (population approximately 1,700). Townsend is the first city on the Missouri River.

The Department is considering PM_{10} monitoring in Townsend, starting in 1995, because of dusty streets, residential wood combustion, and anticipated population growth.

2.6.3.3 GALLATIN COUNTY

The PM_{10} area of most concern in Gallatin County centers around the cities of Bozeman and Belgrade. Bozeman (population 23,000) lies at the eastern edge of the Gallatin Valley and is home to Montana State University. Bozeman does not have any major air pollution sources, but does have problems with traditional area-wide sources such as emissions from paved and unpaved roads and residential wood combustion. Belgrade, with a population of 3,500 lies nine miles west of Bozeman. Belgrade has one major air pollution point source, the Louisiana Pacific sawmill, whose emissions include a wood-fired boiler and dust from the log deck. Belgrade's main particulate emission sources include paved and unpaved roads, residential wood combustion and the sawmill.

The dimensions of the Gallatin Valley are approximately 12 miles by 20 miles. This large area typically allows pollutants to disperse with moderate to fast wind speeds. However, during fall and winter, infrequent calm inversion conditions do allow elevated PM_{10} concentrations to accumulate around the urban areas. Also, winter road sanding contributes to elevated PM_{10} concentrations from re-entrained road dust in the spring.

The Department has been monitoring for particulate matter in Bozeman since 1978. The primary site has been at the East Main City Building (30-031-0002). Other locations were also monitored for TSP, however, the East Main site proved to be the worst-case site in Bozeman at that time and no further investigation has been made since 1987 in regards to either TSP or PM_{10}.

In 1985, the Department installed a PM_{10} monitor at the East Main site and in 1987, when the PM_{10} standard was promulgated, the Department discontinued all Bozeman area TSP monitoring. Also, in 1987, the EPA designated Bozeman as a Group III area. The

Department installed a second PM_{10} sampler at the East Main site on January 11, 1991, and increased the sampling frequency from 1-in-6 days to 1-in-2 during the first and fourth calendar quarters. Recently the Bozeman area's population has exploded, creating traffic congestion and other factors that contribute to increased PM_{10} concentrations. Thus far Bozeman has not recorded any exceedances of the PM_{10} standard, either 24-hour or annual, however, further investigation is required to determine if the current site is still a maximum concentration site. The Department may perform a PM_{10} saturation study in the near future, but will wait until traffic rerouting construction is completed prior to proceeding with the study.

In Belgrade, the Department received numerous complaints and a public petition for air quality monitoring in the city. Although the community is small, it has experienced some urban sprawl from nearby Bozeman and has a major sawmill whose emissions include a wood-fired boiler and dust from the log deck. However, the main concern voiced by the citizens centered on dust from paved and unpaved roads. The Department installed two PM_{10} samplers in a central location in an open field behind a grain elevator and sampling began in October 1991. The site operates on a 1-in-2 schedule during the 1st and 4th calendar quarters and 1-in-6 during the 2nd and 3rd quarters. Since sampling began readings have been low, with an occasional high reading; the highest being 137 ug/m^3 on November 11, 1993.

In the southern end of Gallatin County, West Yellowstone and Big Sky are becoming PM_{10} concerns. Both of these towns rely exclusively on seasonal tourist and recreational activities. West Yellowstone is a main entrance to Yellowstone National Park and experiences high traffic counts nearly year round. Particulate emissions come from dirty streets, residential wood combustion (RWC), and motor vehicle tailpipes, especially in the winter with high snowmobile traffic levels. Big Sky is a rapidly growing year-round resort area that is experiencing major environmental problems due to growth. Big Sky is located on the west side of the very narrow Gallatin River Canyon and the resort area is located further west in the Madison Mountain Range. This area's main PM_{10} emission source is suspected to be wood smoke from RWC and summer forest fires/controlled burns.

In October 1994, a PM_{10} site was installed just east of West Yellowstone at the West Entrance Station of Yellowstone National Park. This site was micro-scale for monitoring PM_{10} concentrations mainly from the snowmobile traffic past the West Entrance Station. The sampler was located immediately east of the kiosk (ticket booth) where workers complained of numerous headaches and nausea during the winter snowmobile season. The Wedding PM_{10} sampler used was borrowed by the National Park Service (NPS) from the Bitterroot National Forest in Missoula. The sampler was set up and maintained

through a cooperative effort with the NPS and this Department. Data from this site was entered into the AIRS database. The site was discontinued on March 24, 1995, after the park was closed to snowmobile traffic. The NPS also operated two MFC Sierra-Anderson PM_{10} samplers, one CO analyzer and one TEOM PM_{10} sampler independent of this site. The PM_{10} values from this site were consistently very low.

Depending on future resources a PM_{10} site may be installed in the downtown area of West Yellowstone. This area is a source of citizen complaints regarding wood smoke and winter snowmobile exhaust problems. Also, the USFS and the NPS have a strong interest in monitoring this area.

2.6.3.4 JEFFERSON COUNTY

Particulate concerns in Jefferson County center around area sources in the northern part of the county. This part of the county serves as a bedroom community for persons living near and commuting to Helena. The northern part of Jefferson County includes the unincorporated communities of Montana City and Clancy as well as several adjacent subdivisions. These communities are located along the Prickly Pear Creek drainage with the Continental Divide range to the west and the Elkhorn Mountains to the east. Drainage winds tend to funnel the airflow on a north-south axis although the area does experiences calm winds and temperature inversions.

The Montana City School is a proposed location for a PM_{10} site located in the northern Jefferson County near Helena and East Helena. The Ashgrove cement plant is located a short distance northeast of this site and the ASARCO lead smelter to the north. This is a fast growing residential area with emissions from residential wood combustion and re-entrained road dust that may directly impact the Helena area (southern end of Lewis & Clark County) during winter inversions. These area sources have the potential to cause elevated particulate concentrations.

2.6.3.5 LEWIS & CLARK COUNTY

Most particulate problems in Lewis & Clark County center around the city of Helena (population 25,000) and the town of East Helena (population 1,600). These two communities are situated near the southern end of the Helena Valley. The valley is large (approximately 16 miles by 16 miles), lies east of the Continental Divide, and is surrounded by mountains on all sides. Wintertime dispersion conditions are generally favorable due to the fact that the city often gets chinook winds. These winds usually keep inversions from setting in for long periods of time. However,

nighttime inversions and inversions lasting for a few days are common. Predominant wind direction is from the northwest through southwest.

Particulate monitoring has been conducted in Lewis & Clark County since 1970. Initial sampling was performed using standard hi-vol samplers for TSP. The mainstay of the particulate monitoring network in Helena has been at the Cogswell Building (30-049-0001) near the state capitol building. There have been several other sites in Helena, some of which were associated with Lewis & Clark County's wood stove curtailment program. PM_{10} sampling began in Helena in 1985 when the Cogswell TSP sampler was converted to PM_{10}. Starting in 1991, the Department added Lewis & Clark County Health Department's Helena-Lincoln School (30-049-0018) PM_{10} site to its SLAMS network. Concentrations at this site have been consistently low.

Visibility data was collected using a nephelometer at the Lincoln School site (30-049-0018) from December 1988 to March 1993. The county used the visibility data, correlated to PM_{10} levels, to call alerts for their mandatory winter-time wood stove curtailment program. The aging nephelometer was replaced with a Tapered Element Oscillating Microbalance (TEOM) in October 1993. The TEOM, unlike the nephelometer, outputs near real-time PM_{10} data and is expected to be more reliable and user friendly. Year-round data from the TEOM has been stored in AIRS since start-up and will continue indefinitely. The TEOM is expected to become the primary SLAMS site monitor in 1995. On June 27, 1995, EPA approved the Department's request to replace manual PM_{10} samplers at selected sites with TEOMs. The sampling schedule for the SA-321B samplers at Lincoln School will be decreased to 1-in-6 year-round and only one sampler will remain at this site. The other sampler will be used for monitoring elsewhere in the Helena vicinity at a location left to the discretion of the Lewis & Clark County Environmental Health Department pending approval by the Montana Department of Environmental Quality.

A considerable amount of particulate sampling has also been conducted in the East Helena area. Most of this particulate sampling has been conducted in connection with lead analyses around ASARCO's primary lead smelter.

Because of the newly implemented PM_{10} standards, two SA1200 PM_{10} samplers were installed next to the existing TSP samplers at the East Helena Hadfield Site (30-049-0719). These were installed to provide comparison between the newly promulgated PM_{10} standard and TSP, and to compare TSP/Pb versus PM_{10}/Pb. Data collection began on July 1, 1988.

Three years of sampling showed that PM_{10}/Pb concentrations were consistently lower than TSP/Pb concentrations. Because of this

relationship and the fact that the Pb NAAQS is based on TSP, the Department felt that discontinuation of PM_{10}/Pb monitoring was warranted. EPA approved the Departments request verbally on June 12, 1991, and in a letter dated August 14, 1991. PM_{10}/Pb monitoring was discontinued on August 10, 1991.

The Hadfield site PM_{10} concentrations over the three year sampling period were low with the highest annual arithmetic mean being only 38 ug/m^3. A request to discontinue PM_{10} sampling in East Helena was submitted to the EPA in a February 10, 1993, letter. The request was approved and PM_{10} sampling was discontinued on April 1, 1993.

From July 1, 1990, until March 31, 1991, the East Helena sites (except Hadfield) operated on an every day sampling schedule in support of data collection for the lead SIP. Since most of that effort has been completed, the Department proposed shutting down three of the TSP/Pb sites in East Helena. This request was made in a letter to EPA dated May 31, 1991. EPA responded in a letter dated August 14, 1991, agreeing to allow the termination of Microwave but wanted the Department to continue the other sites. They also wanted to activate another TSP/Pb site in the area of the old Hastie site (30-049-0002). A SIP provision required the State to run lead (and TSP) sites at Hadfield, Dartman Field, Firehall and Hastie, but Hastie had been shut down in 1985 due to siting difficulties. The Department responded in a letter dated September 9, 1991, stating modeling will be reviewed before establishing another site in the Hastie area. The Hadfield site was shut down June 1993 and the samplers were moved to the new Prickly Pear site (30-049-0727) which was started November 1993.

The current monitoring network consists of the following four TSP/Pb sites: Prickly Pear (30-049-0727), Firehall (30-049-0714), Dartman Field (30-049-0724), and Old Railroad (30-049-0726). Currently, Firehall runs on a 1-in-2 schedule. The other three sites run at a 1-in-6 schedule (Prickly Pear runs collocated 1-in-6).

The Department intends to continue running the current network of TSP/Pb and PM_{10} sites in Helena and East Helena since it is adequate for SIP development purposes and compliance tracking.

PM_{10} monitoring has recently been proposed for the community of Lincoln (population 500). Lincoln is located west of the Continental Divide in the Blackfoot River Valley and is typical of many western Montana small towns. Lincoln is located in a deep, narrow river valley in a mountainous area with limited air dispersion and little control over open burning and residential wood burning. The Lincoln area typically experiences numerous inversions and poor visibility during the winter months. Additionally, a large scale open-pit gold mine is anticipated to

begin operations near-by. Therefore, monitoring would be advantageous in this area to determine pre-mining PM_{10} concentrations.

2.6.3.6 SILVER BOW COUNTY

Butte is a city with an urban population of approximately 32,000. The elevation averages 5300 feet with the Continental Divide surrounding the city on three sides. Wind speeds in Butte are usually low and the area is susceptible to temperature inversions in the fall and winter. The old part of Butte is built on a hillside next to the Berkeley Pit mining area and the new part of town is built on the valley floor to the south.

Particulate monitoring has been conducted in Silver Bow County since 1971. In 1978-80, the Department conducted TSP monitoring in Butte as part of the Montana Air Pollution Study (MAPS). The network consisted of five sites in the city center. The Department has observed that the city center sites and specifically the Greeley School site (30-093-0005) had the highest particulate concentrations. The Department decreased its network to this single site in 1984.

The Department started daily PM_{10} sampling at the Greeley School site in September 1987. During the winter of 1987-88, the Department conducted a source apportionment study in Butte. The study involved collecting particulate data using dichotomous samplers; sources were then apportioned through chemical mass balance and optical microscopy techniques.

In November 1989, the Greeley School became a collocated PM_{10} site and on July 1992 the sampling frequency was changed from the every day sampling schedule to a 1-in-6 and a 1-in-2 schedule during the 2nd/3rd and 1st/4th calendar quarters respectively.

The Department developed the Butte PM_{10} SIP and submitted it to the EPA in November 1991. The control strategies included controls on residential wood combustion, paved and unpaved roads, and new operating permits for area mining activities.

As part of the SIP, an emission inventory for PM_{10} was conducted in Butte. The inventory identified an additional "hot spot" for PM_{10} emissions in a residential area near the Harrison Avenue-Interstate 90 intersection. During January 1991, the Department established the Butte-Greenhouse (30-093-0008) PM_{10} site in the maximum emission inventory grid near the intersection. During the 2 ½ years of operation, the Greenhouse site consistently had lower readings than the Greeley School site. With EPA approval, the Department shut down the Greenhouse site at the end of June 1992.

Visibility data was collected using a nephelometer at the Butte-Greeley School site (30-093-0005) from July 1989 to March 1993. The visibility data, correlated to PM_{10} concentrations, was used by the Butte-Silver Bow County Health Department (BSBHD) to call air pollution alerts for their mandatory wintertime wood burning curtailment program. The BSBHD nephelometer was replaced with a TEOM that started operating in August 1993. Year-round data from the TEOM has been stored in AIRS since start-up. The TEOM is expected to become the primary SLAMS PM_{10} compliance monitor in 1995. On June 27, 1995, EPA approved the Department's request to replace manual PM_{10} samplers at selected sites with TEOMs. The sampling schedule for the SA-321B samplers at Greeley School will be decreased to 1-in-6 year-round and only one sampler will remain at this site. The other samplers will be used elsewhere in the State as needed.

2.6.4 AQCR 143 - EASTERN MONTANA

2.6.4.1 RICHLAND COUNTY

The air quality concerns in Richland County center around Sidney. Sidney (population 5,200) is situated near the Yellowstone River in far eastern Montana near the North Dakota border. In the late 1970's and early 1980's, the area experienced an economic upturn due to oil and gas exploration and development. Much of this upturn has since died down due to gas price stabilization. Other industrial sources in the Sidney area include Montana Dakota Utilities (coal-fired power plant) and Holly Sugar (sugar beet processing facility).

In 1983, the Department installed a hi-vol sampler in downtown Sidney (30-083-0010). This site operated until September 1987. At that time the PM_{10} standard had been promulgated by EPA and the Department felt that its resources were better applied to PM_{10} problems in the western valleys. The Department is considering installing a PM_{10} sampler in downtown Sidney because Sidney had the highest TSP readings in Eastern Montana and there is no data for over ten years. PM_{10} sampling in Sidney is dependant on equipment availability.

2.6.4.2 ROSEBUD COUNTY

The air quality concern for particulate in Rosebud County centers around the cities of Colstrip and Ashland. In Colstrip there are four coal-fired power generating plants and two large coal mines. Montana Power Company (MPC), Western Energy, and Peabody Coal Company have operated particulate sampling networks around their facilities as conditions of their permits. In Ashland, there have been recent concerns due to point source

emissions from a tepee burner and area sources including wood and coal burning stoves.

The Department requested Montana Power to install and operate a PM_{10} site at their MPC #3 site (30-087-0700). Two samplers (reporting and co-located) were installed in December 1989 and the data was submitted to the Department. The TSP samplers at MPC sites #1 & #2 (30-087-0701 and -0702, respectively) were replaced with PM_{10} samplers in July 1992. At that time the Department required MPC to operate the PM_{10} samplers at all sites on an every third day sampling schedule. In July 1994, MPC requested that the Department review their Colstrip PM_{10} network. As a result of that review changes were allowed starting on July 1, 1995. The Department is studying the possibility of reducing the PM_{10} sampling frequency at site #1 to once every sixth day, terminating the PM_{10} sampling at site #2, and leaving the PM_{10} sampling frequency at site #3 at every third day for the reporting sampler and every sixth day for the co-located sampler.

Ashland is a small town with a population of approximately 1,000. The city is located along the Tongue River between the Northern Cheyenne Indian Reservation to the west and the Custer National Forest to the east and south. Ashland is located 21 miles east of Lame Deer which is a PM_{10} non-attainment area. The State has no jurisdiction on the tribal lands regarding air quality; plans are being made to bring the area into compliance through tribal and federal offices. Ashland has many of the same source and topographical influences as Lame Deer. Contributing sources include re-entrained road dust, wood and coal burning, and an industrial tepee burner. Depending on resources, the Department may install a PM_{10} sampler in Ashland.

2.6.5 AQCR 144 - NORTHWESTERN MONTANA

AQCR 144 includes Flathead, Lake, Lincoln, Mineral, Missoula, Ravalli and Sanders counties. This part of Montana is very mountainous and heavily forested. The valleys of northwestern Montana have the poorest atmospheric dispersion in the State, and high particulate concentrations historically have been a problem in this area. Two areas were originally designated non-attainment areas for TSP and now AQCR 144 has eight PM_{10} non-attainment areas. The Department has devoted considerable time and resources to solving the particulate problem in northwest Montana.

2.6.5.1 FLATHEAD COUNTY

The particulate problems in Flathead County center around the communities in the greater Flathead Valley. These communities include Kalispell, Columbia Falls and Whitefish.

Kalispell has a population of approximately 12,000 persons and the majority of the 67,300 county residents live within a 15 mile radius of the city. Kalispell serves as a business, service and shopping center for the greater Flathead Valley. The Flathead Valley is located west of the Continental Divide and is a fairly wide valley (14 miles across). The climate is mild with calm or low wind speeds and the area is susceptible to temperature inversions in the fall and winter.

Particulate monitoring has been conducted in Kalispell since 1971. From 1977 to 1982, Kalispell was one of the communities involved with the Flathead River Basin EIS. Monitoring was conducted at several locations in the basin and it was determined that most of the high concentration sites were associated with anthropogenic sources in the city centers.

The current Kalispell site is at the old Universal Athletics location (30-029-1015) in the downtown area within one block of U.S. Highway 93. A TSP sampler operated at this site from 1980 until 1987. In 1985, the Department installed a PM_{10} sampler at this site and ran it concurrent with the TSP sampler. Anticipating promulgation of new PM_{10} NAAQS, the Department initiated a source apportionment study in Kalispell in 1986 and 1987. Kalispell was designated a Group I area after EPA promulgated the new PM_{10} standard in 1987. The Group I designation required the Department to conduct daily sampling, to develop a SIP which would identify source contributions, and to propose enforceable control strategies.

The source apportionment study identified re-entrained road dust as the predominant source followed by residential wood combustion. A PM_{10} SIP for Kalispell was developed and submitted to EPA on June 29, 1990. The final SIP (November 1991) consisted of controls on fugitive dust emissions from roads, parking lots, construction, and demolition.

The Department will continue PM_{10} monitoring at the Universal Athletics site to document maintenance and attainment of the standard. The Department considers the Universal Athletics site to be located at the maximum concentration area in Kalispell.

Visibility data was collected using a nephelometer at the Courthouse East site (30-029-1017) in Kalispell from January 1991 to March 1993. The nephelometer was operated by the Flathead County Health Department in response to citizens' concerns on air quality. The nephelometer was used to estimate particulate levels for the voluntary winter-time wood burning curtailment program. The nephelometer was replaced with a TEOM in October 1993. The TEOM and a SA-1200 were both installed in an adjacent building, East Maintenance Building (30-029-1018). The SA-1200 was collocated with the TEOM for data comparison. Year-round data from

the TEOM has been stored in AIRS since start-up. In 1995, this site will be permanently shut down and the TEOM will be moved to the Kalispell-Universal Athletics (30-029-1015) PM_{10} non-attainment site. The TEOM will be the primary SLAMS PM_{10} compliance monitor for this site. On June 27, 1995, EPA approved the Department's request to replace manual PM_{10} samplers at selected sites with TEOMs. The sampling schedule for the SA-321B samplers at Kalispell-Universal Athletics will be decreased to 1-in-6 year-round and only one sampler will remain at this site. The other samplers will be used for monitoring elsewhere in the State as needed.

A new PM_{10} site was developed northeast of Kalispell along U.S. Highway 2 at the Evergreen Fire Station (30-029-0043). A Plum Creek sawmill and plywood plant is located ½ mile west of the site. This site started operation in June 1994 and has produced some mid-range PM_{10} concentration values. An additional sampler will be added to this site by the fall of 1995. This will allow the Department to increase the sampling frequency to 1-in-2 during the winter months.

Columbia Falls is an industrial town of about 3,000 people located in the northeast corner of the Flathead Valley. In the vicinity of Columbia Falls are a plywood-particle board-sawmill complex, an aluminum reduction plant and two other sawmills. Wind patterns in the area are dominated by drainage winds through Badrock Canyon to the east and through a gap north of town which drains the North Fork of the Flathead River. The area is susceptible to temperature inversions in the fall and winter months.

Particulate monitoring has been conducted in Columbia Falls since 1971. Initial sampling was performed using standard hi-vol TSP samplers. The two principal sites were at the Anders Residence (30-029-0005) and the Junior High School (30-029-0003).

In May 1985, the Department installed a PM_{10} sampler at the Junior High School, a site that had seen high TSP concentrations in the early 1970's. In October 1985, the Department also installed a TSP sampler at the same site. After two years of collecting TSP data at the Junior High School site, the Department compared Junior High versus Anders and determined that they were measuring the same air mass. As a result, the Department decided to shut down the Anders site and rely solely on the Junior High School site.

In October 1987, the 24-hour PM_{10} standard was exceeded resulting in the area being designated a non-attainment area. During the quarter following the exceedance, the Department commenced daily sampling. From September 1989 until April 1990, the Department conducted a source apportionment study in Columbia Falls. The results from this study indicated that fugitive dust was the major contributor to the PM_{10} problem. A SIP was developed

and submitted to the EPA in November 1991. The SIP consisted of controls on fugitive dust emissions from roads, parking lots, construction, and demolition, as well as the Plum Creek facility.

The Department continues to operate PM_{10} samplers at the Junior High School site. Ambient PM_{10} data from 1988 through present has shown no violations of either the annual or short-term PM_{10} standards. The Department will continue to operate the PM_{10} site at its present location and will use it for attainment and maintenance demonstration of the PM_{10} standard. The Department is considering a PM_{10} saturation study in Columbia Falls for the spring of 1996. The implementation of this study depends on availability of resources and the cooperation of the Flathead County Health Department.

Whitefish is a city of approximately 4,400 people located in the northwest corner of the Flathead Valley. Whitefish is not a major commercial or industrial center, but a year-around tourist destination. The area is susceptible to temperature inversions in the fall and winter months.

As part of the Flathead River Basin EIS, the Department measured TSP in Whitefish from 1981 to 1983. The data showed that the area was in compliance with the TSP NAAQS. However, the Department believes that the site was not located in the maximum concentration area. As a result of the 1990 Network Review, the Department installed a PM_{10} site located in the central business district of Whitefish at Markus Foods (30-029-0039). Since sampling began in April 1991 numerous PM_{10} exceedances have been recorded at the Markus Foods site. Whitefish was officially designated as a non-attainment area in October 1993.

A source apportionment study (CMB) was conducted in Whitefish from January 1, 1993, through March 31, 1994. The CMB study samplers were located across the alley almost directly east of Markus Foods and a background site consisting of a single SA1200 sampler was established approximately 1 ½ miles east of Whitefish (Patterson Corral, 30-029-0041). The CMB study showed re-entrained road dust as the largest source of particulate.

To confirm the Markus Foods site as the maximum concentration PM_{10} site, a PM_{10} saturation study was done during February, March, and April of 1993. Eleven sites, most of which were located in areas with potentially high PM_{10} levels were chosen and portable saturation samplers were deployed at these sites. The results of the study revealed that elevated PM_{10} levels occur in the general downtown area and on south U.S. Highway 93; with no statistical difference between the two areas. As a result of this study, the Department intends to maintain Markus Foods as the maximum concentration site and there are no plans for additional sites in Whitefish.

A TEOM will be placed at the Markus Foods site in 1995 and will become the primary SLAMS PM_{10} compliance monitor. On June 27, 1995, EPA approved the Department's request to replace manual PM_{10} samplers at selected sites with TEOMs. One SA-321B will remain on site running on a 1-in-6 schedule for back-up purposes. The remaining SA-321B samplers will be removed and utilized elsewhere in the State as needed.

The Department has proposed to develop a "background" site for the Flathead Valley away from large population centers at or near the Glacier International Airport (a relatively central location between Kalispell, Whitefish, and Columbia Falls). Since all PM_{10} sites in the Flathead Valley are located near areas with high particulate concentrations, it would be advantageous to develop a site to measure PM_{10} in a less developed part of the valley. This site will be developed in 1995 with cooperation of the Flathead County Health Department (FCHD).

The Department has proposed to develop a PM_{10} site in Bigfork. The site is needed because of dusty roads, RWC, and projected high population growth.

2.6.5.2 LINCOLN COUNTY

The particulate problems in Lincoln County center around the communities of Libby, Eureka and Troy.

Libby is a small town with a population of approximately 2,500. It is located along the Kootenai River in extreme northwestern Montana. The Kootenai Valley runs approximately east to west in Libby and is only about 2 miles wide. The Libby area may have the worst ventilation of any community in Montana. During the fall and winter months, the winds are almost always calm or very light. This, along with persistent temperature inversions, results in high particulate levels in the narrow valley.

Particulate monitoring has been conducted in Libby since the mid-1970's. The principal TSP sites were at the Brown Residence (30-053-0010) and the Lincoln County Courthouse (30-053-0012).

In May 1985, the Department installed a PM_{10} sampler at the Courthouse site and in August 1985, the Department discontinued the TSP sampler at the Brown Residence. Data analysis revealed that hi-vol TSP samplers at the Lincoln County Courthouse and the Brown Residence sites were measuring the same airshed.

From October 1987 until December 1988, the Department conducted a CMB source apportionment study in Libby. As a backup to CMB, the Department apportioned sources using the optical microscopy technique. The results of the study showed that re-

entrained road dust and residential wood combustion were the principal sources.

A SIP was submitted to EPA on November 25, 1991, and upon review, the EPA requested that the Department commit to several revisions in order for the SIP to be considered for approval. These revisions were submitted to the EPA on May 24, 1993, and the SIP was approved by EPA on October 31, 1994.

Visibility data was collected using a nephelometer at the County Courthouse Annex site (30-053-0018) in Libby from December 1986 to October 1993. The nephelometer was operated by the Lincoln County Health Department and used to call alerts for their mandatory winter-time wood burning curtailment program.

The Department replaced the nephelometer with a continuous PM_{10} TEOM monitor at the Lincoln County Annex site (30-053-0018), which is one block east of the Courthouse site. The TEOM began operating in October 1993 and was primarily used for the Libby RWC curtailment program, the Montana Smoke Management program, and to correlate data with the PM_{10} samplers at the Courthouse. As of April 1, 1995, the Courthouse site has ceased operation. The TEOM has become Libby's primary SLAMS PM_{10} compliance monitor. On June 27, 1995, EPA approved the Department's request to replace manual PM_{10} samplers at selected sites with TEOMs. One of the SA-321B samplers from the Courthouse site will be moved to the Annex site and used only for back-up purposes. The remaining samplers at the Courthouse site will be removed and utilized elsewhere in the State as needed.

Eureka is a small town in northwestern Montana with a population of approximately 1,100. The town is situated in rolling hills along the Tobacco River approximately five miles upstream from Lake Koocanusa. Particulate monitoring for TSP started in 1984. Twenty-four hour concentrations exceeded the short-term TSP NAAQS on a few occasions. In 1987, the Department replaced the TSP sampler with a PM_{10} sampler and sampling continued through June 1992. Since PM_{10} levels were low, sampling was discontinued. The Department plans to install a new PM_{10} site in Eureka by the fall of 1996 because residents have traditionally complained about wood smoke. Also, the major reconstruction project on U.S. Highway 93 through town will be completed by then.

Troy is a small town 18 miles west of Libby with a population of approximately 1,000. The town is situated along the Kootenai River Valley and like Libby has some of the worst ventilation in the State. In October 1991, the Department installed two samplers at the high school (30-053-0019) in the northwestern part of town. Readings were consistently low for the three years that the site was operated. Therefore, the site was shut down June 30, 1995, and the samplers were utilized elsewhere.

The Department has proposed installation of a Northwest Montana background site in Lincoln County, preferably at a USFS facility. In 1995, the Department will investigate possible site locations and will plan on installing a site by October 1996 or sooner depending on available resources.

2.6.5.3 MISSOULA COUNTY

Particulate problems in Missoula County center around the city of Missoula. Missoula is situated at the confluence of the Bitterroot and Clark Fork Rivers in western Montana. The city proper has a population of approximately 45,000, but the Missoula Valley contains approximately 75,000. The Missoula Valley is fairly narrow (approximately 6 miles across) and similar to other western Montana valleys in that it is susceptible to temperature inversions in the fall and winter months and wind speeds are fairly calm throughout the year.

Particulate monitoring in Missoula has been conducted since 1971 at several sites in the Missoula Valley. The initial TSP particulate concentrations were measured with the standard hi-vol samplers. During the early to mid 1970's, the highest concentrations were measured in the downtown area at the Courthouse Roof site (30-063-0001). In 1977, after the passage of the Clean Air Act Amendments, Missoula was designated non-attainment for the primary TSP standards based on data from this site. As part of the SIP to control TSP, the city of Missoula incorporated a systematic program of street sweeping and flushing to show attainment by 1982. Although not part of the plan, Missoula implemented several control measures directed at emissions from residential wood combustion. The control measures brought the area into compliance with the annual NAAQS but occasionally the 24-hour standard was exceeded.

Over the years, the air monitoring network in Missoula has been quite extensive and comprehensive. The Missoula City-County Health Department (MCCHD) has monitored for particulate at several locations. In addition, the MCCHD has operated sites in Bonner (near a major sawmill/plywood factory), in Lolo (at the waste water treatment plant), near Frenchtown (by a kraft pulp mill), in East Missoula, in the Rattlesnake area, in southwest Missoula near the south hills and on the western edge of the city. For years MCCHD operated daily TSP monitoring at most of their major sites and obtained profiles of particulate trends in the Missoula Valley. In 1984, MCCHD also started collecting PM_{10} data at two of their sites (Rose Park and Boyd Park) in addition to all of their TSP data. The maximum PM_{10} concentration recorded in 1984 was 257 $\mu g/m^3$ at Rose Park.

During the fourth calendar quarter of 1986 and the first quarter of 1987, the MCCHD conducted a PM_{10} source apportionment study. The study showed that the major sources contributing to the PM_{10} problem were re-entrained road dust from the city's streets followed by residential wood combustion during the winter heating season. Missoula's SIP was developed and submitted to EPA.

The emission inventories developed in the SIP showed that the highest concentration grids are in south Missoula (where the Boyd Park site is located) and in downtown Missoula (where the Health Department site is located). The Department and the MCCHD will continue to operate these two sites to track compliance with the NAAQS. Also, MCCHD will conduct a PM_{10} CMB study during the winter of 1995-1996.

PM_{10} data was collected in Missoula using a beta attenuation monitor (BAM) at the Boyd Park site (30-063-0024) from January 1992 to March 1994. Missoula personnel used the BAM data and forecast information from the National Weather Service to make predictions for their mandatory winter-time residential wood burning curtailment program. A TEOM was installed by the Department in October 1994 to replace the BAM. The BAM remains on-site as a back-up device for the county's wood burning curtailment program. The TEOM data has been stored in AIRS since start-up. In 1995, the TEOM will become the site's primary compliance and SLAMS monitor. On June 27, 1995, EPA approved the Department's request to replace manual PM_{10} samplers at selected sites with TEOMs. One SA-321B sampler will remain on site and the remaining samplers will be utilized elsewhere in Missoula County where PM_{10} monitoring is needed.

The MCCHD will continue to jointly operate two PM_{10} sites with Stone Container near their Frenchtown kraft pulp mill. These sites were operated as TSP sites until May 18, 1992, when the samplers were switched to PM_{10} samplers.

In 1995, the Department is proposing additional PM_{10} monitoring in Missoula County to be implemented in Bonner, Seeley Lake, Frenchtown, and Lolo (sites listed in order of priority). Also, the Department is considering $PM_{2.5}$ sampling at Boyd Park.

2.6.5.4 RAVALLI COUNTY

Particulate concerns in Ravalli County center around the city of Hamilton. Hamilton is a small (population 2,800), but rapidly growing community situated in the center of the Bitterroot Valley. Hamilton is about 50 miles south of Missoula and about 300 feet higher in elevation. Hamilton often experiences better wintertime ventilation than nearby Missoula. There are times, however, when temperature inversions in Hamilton can trap pollutants and cause

elevated levels.

In 1983, the Department began TSP sampling at the Ravalli County Courthouse (30-081-0001) in the city center. Sampling was initiated due to citizen complaints about dust and wood stove emissions. In 1986, the Department installed a PM_{10} sampler at the same location and continued to collect TSP and PM_{10} data until 1987.

On July 31, 1987, the EPA promulgated new standards for PM_{10}. The standards required daily monitoring at Group I areas and every other day monitoring at Group II areas. Based on these requirements and due to the low concentrations recorded at the Hamilton site, the Department discontinued both TSP and PM_{10} monitoring during the fall of 1987.

Because of the growing population and renewed citizen concerns, the Department reopened the Ravalli County Courthouse PM_{10} site (30-081-0001) in June 1994. A second site, MT Gold Realty (30-081-0002) was installed two blocks away adjacent to U.S. Highway 93 and began operation in July 1994. The MT Gold site has consistently produced PM_{10} values higher than the Courthouse site. Neither site has measured PM_{10} concentrations within 50% of the 24-hour NAAQS, however, monitoring will continue for at least two more years.

The Bitterroot National Forest voluntarily started two new PM_{10} sites in the Bitterroot Valley to measure forest related burn activities on the valley's air quality. One site is located at the Stevensville-Ranger Station (30-081-0003) approximately 30 miles south of Missoula. This site supports one SA-1200 and one TEOM. Low PM_{10} values have been consistently reported since the site started in July 1994. The other site is located at the West Fork Ranger Station (30-081-0004) along the West Fork of the Bitterroot River south of Darby and about 20 miles south of Hamilton. This site has produced extremely low PM_{10} values since startup in July 1994. The Department may use data from this site for PM_{10} background in southwestern Montana.

2.6.5.5 SANDERS COUNTY

Particulate concerns in Sanders County center around the city of Thompson Falls. Thompson Falls is a small town with a population of approximately 1,300 persons. It lies on the north side of the Thompson Falls Reservoir, a small impoundment on the Clark Fork River. The Clark Fork Valley around Thompson Falls runs east and west and mountains rise to 7000 feet both to the north and south of Thompson Falls. Like other western Montana valleys, the area experiences temperature inversions during the fall and winter months.

The Department conducted limited TSP monitoring in the early 1970's and again in 1978. It was not until 1983 that the Department established a permanent TSP site at the Sanders County Courthouse (30-089-0003). Readings collected during the first few years showed levels exceeding the NAAQS for TSP. In 1985, the Department installed a PM_{10} sampler at the same location. The PM_{10} data from 1985 to 1987 was somewhat limited, but did record concentrations approaching the proposed NAAQS for PM_{10}. In 1987, the Thompson Falls area was designated as a Group II area for PM_{10}.

In February 1988, the Sanders County Courthouse site recorded a PM_{10} concentration in excess of the 24-hour PM_{10} standard. This exceedance required the State to conduct daily sampling and to develop a SIP with control strategies to bring the area into compliance. The Department initiated daily sampling in July 1988 which continued until July 1, 1992. The site currently runs on a 1-in-6 and a 1-in-2 frequency during the 2nd/3rd and 1st/4th quarters respectively.

The Department performed a source apportionment study in Thompson Falls from October 1990 until April 1991. The CMB monitors were installed at the Railroad site (30-089-0005), across Main Street from the Courthouse site. In addition, the Department installed a background PM_{10} sampler in an open field at the Muster Ranch (30-089-0006), a few miles north of Thompson Falls.

Following a technical study and emission inventory in Thompson Falls, it was determined that re-entrained road dust was the major contributing source of PM_{10} emissions. Minor sources were shown to be wood combustion and the WI Forest Products boilers. The control plan that is currently being developed will most likely include the implementation and enforcement of specifications for sanding materials and more frequent street sweeping.

2.7 METEOROLOGICAL MONITORING

2.7.1 AQCR 140 - SOUTH CENTRAL MONTANA

AQCR 140 is located in south central Montana and includes physical features common to all of the other AQCRs in the State. The Yellowstone and Musselshell Rivers cut through the region from west to east and the Missouri River forms the northern border. The Highwood, Big Belt, Crazy, and Absoroka Mountains border the region to the west. The southern border of the region includes the Beartooth, Pryor and Big Horn Mountains. To the east the boundary cuts through rolling plains and foothills and includes the lower portion of the Musselshell River.

Due to the diverse nature of the terrain and climate in this region, dispersion characteristics are highly localized and are

quite variable. Mountainous terrain can provide shelter from prevailing winds and severely limit dispersion of pollutants in one area while funnelling high winds into another to greatly enhance the dispersion. Temperature inversions which trap pollutants are common in this region throughout the year but the depth, duration and intensity vary widely from the mountains to the plains. Inversions on the plains seldom persist past noon and are usually shallow and weak. Inversions in the mountainous areas are usually much stronger and deeper and can persist for several days during the fall and winter. Wind speed and direction patterns in the mountains are significantly affected by terrain and generalizations or comparisons to any existing measurements at other sites are not very practical. Wind patterns on the flatter portion of the region can be evaluated by comparison to existing sites and generally show the prevailing winds to be from the west and southwest.

2.7.1.1 YELLOWSTONE COUNTY

Meteorological monitoring in Yellowstone County consists of two sites operated by the Department, one site operated by the Yellowstone County Air Pollution Control (YCAPC), two sites operated by Yellowstone Energy Limited Partnership (YELP), and three sites operated by a group of Billings/Laurel industries called BLAQTC.

As stated previously, Billings and Laurel are situated along the Yellowstone River Valley in south central Montana. The Yellowstone River Valley runs from southwest to northeast and is a predominant topographical influence on the airflow in the area. In Billings, there are cliffs or rimrocks located both north and south of the river which also tend to cause channeling. The distance between the north and south rims ranges from about one to five miles. In Laurel, the valley tends to be a little wider and the predominant high terrain is not close by. The cities of Billings and Laurel and all of the industrial sources are located along the river valley. Nearby terrain is often higher than the highest smoke stacks.

The Department operates a 10 meter meteorological tower at its site at Coburn Road (30-111-0066). The met sensors were previously on a six foot tripod on top of the monitoring trailer. On November 14, 1990, the Department installed a 10 meter tower in the field near the monitoring shelter. Temperature data (at two meter probe height) is also collected at the site. The Coburn Road site is situated about 300 feet above the valley floor on the south rims. The wind data is used to determine which source or sources contributed to SO_2 readings at the site. The wind data was also used in connection with the area wide SO_2 dispersion modeling study.

The Department also operates met sensors at its site at Sacrifice Cliff (30-111-0080). This site is located on a six foot tripod on top of the sampling shelter. Because of the inability to comply with siting requirements (too close to Sacrifice Cliff) and the proximity to the Coburn Road site, the Department decided not to install and guy a 10 meter tower at this site. However, like Coburn Road, the wind data is used to determine which source or sources contributed to SO_2 readings at the site.

The YCAPC operates a met sensor at the Mount Olive CO site (30-111-0079). The met sensor is on a six foot tripod on top of the monitoring shelter. The site does not meet siting criteria for probe height but the met data is used for reviewing the meteorological conditions contributing to high CO readings.

BLAQTC operates three meteorological stations at its three SO_2 sites in Billings and Laurel. These sites are Lockwood Park (30-111-1065), Laurel-BLAQTC (30-111-0016) and Brickyard Lane (30-111-2005). All meteorological equipment is located on 10 meter towers. Analog signals are recorded on chart with the digital signal being stored on magnetic disk. The wind data is used to determine which source or sources contributed to SO_2 readings at the site. The wind data was used in the area wide SO_2 dispersion modeling study.

YELP operates meteorological stations at both of its SO_2 sites in Billings. These sites are Johnson Lane (30-111-2006) and Pine Hills (30-111-2007). All meteorological equipment is located on 10 meter towers. Analog signals are recorded on chart with the digital signal being stored on magnetic disk. The wind data is used to determine which source or sources contributed to SO_2 readings at the site.

2.7.2 AQCR 141 - NORTH CENTRAL MONTANA

AQCR 141, located in north central Montana, is a region of rolling glaciated plains. The Milk, Marias, Teton and Missouri Rivers cut across the region from the west to east creating substantial river valleys that are hundreds of feet lower than the upland bench areas. Relatively small, isolated mountain ranges, the Highwood, Bear Paw and Little Rocky Mountains, rise up from the plains in the eastern half of the region. The western boundary of the region is formed by the Continental Divide and includes most of the area known as the Rocky Mountain Front. The foothills of the Big and Little Belt Mountains form the southern boundary along with the Missouri River. The eastern boundary cuts across the plains north of the Little Rocky Mountains to the Canadian border which is the northern boundary of the region.

With the exception of the isolated mountainous areas most of the region experiences a similar climatological regime with warm

dry summers and cold dry winters interrupted by occasional chinooks. Dispersion potential in the region is generally excellent due to persistent and often very strong winds. Temperature inversions in the area, though frequent, are usually shallow and seldom last past noon. The exceptions to this rule are to be found in the mountainous areas and occasionally in the river valleys. During the winter it is possible to have a warm wind blowing along a bench while cold air remains trapped in the bottom of a valley only a few miles away. Persistent inversions have also been noted in the narrow valleys of the Little Rocky Mountains. The wind flow over the region is generally from the west or southwest unless cold northerly winds are sweeping down from the arctic. Precipitation amounts are uniformly low over the entire region.

2.7.2.1 CASCADE COUNTY

Meteorological monitoring in Cascade County consists of one site operated by the Cascade County Health Department (CCHD) at its CO site at Skyway Conoco (30-013-1023) on 10th Avenue South and the Wire Mill Road site (30-013-2000) located east of the Montana Refining facility both in Great Falls. The Skyway Conoco site met sensors are on a 6 foot tripod on top of the monitoring shelter. The wind data analog signal is currently recorded on a chart recorder and then digitized and stored on magnetic media. The met data is used to review the meteorological conditions contributing to high CO readings. The Wire Mill Road site met sensors are on a 10 meter tower. The wind data analog signal is digitized and stored on magnetic media. The met data is used to review the meteorological conditions contributing to high SO_2 readings.

2.7.3 AQCR 142 - SOUTHWESTERN MONTANA

AQCR 142 is located in the southwestern corner of Montana. The region contains several distinct mountain ranges separated by wide valleys. The valleys run north and south and can be thousands of feet lower than the surrounding mountains. Tributaries for the Missouri, Yellowstone and Clark Fork Rivers have their beginnings in this area.

The mountainous terrain in the region substantially impacts the weather patterns. Precipitation is often limited to the higher mountains while the valleys remain much drier. Winds along the mountain tops are generally westerly and frequently will not reach down into the north-south running valleys. Inversions are frequent and during the fall and winter can persist for days at a time. Occasional severe inversions can be several thousands of feet deep and very strong allowing almost no dispersion of pollutants. This allows even small emission sources to produce localized areas of

poor air quality. Wind speed and direction patterns in this region are highly localized and cannot be adequately characterized by off-site measurements.

2.7.3.1 LEWIS & CLARK COUNTY

Meteorological monitoring in Lewis & Clark County is conducted at six sites operated by ASARCO in East Helena. ASARCO's original met sites in East Helena are located at the Firehall (30-049-0714), Old Railroad (30-049-0726), Kennedy Park (30-049-0703) and Zinc Stack (30-049-0721). Meteorological sensors at the zinc stack are located at mid-stack level and at stack top. All other meteorological sites are located at 10 meter towers (except Firehall which is at 12 meters) and conform to EPA siting criteria. All four meteorological sites have operated since December 1, 1989. Data collected from these sites is used in connection with the East Helena Lead and SO_2 SIPs. The meteorological data is used as input to dispersion models to assess impacts from the smelter and to address control strategies. As part of the SO_2 SIP revisions ASARCO added two new met sites which utilize 10 meter towers and meet all siting requirements. Data collection at the Top of Microwave (30-043-0909) and the McClellan Creek Road #5 (30-043-0912) sites started on April 1, 1993.

Digital signals from met sensors are directly written to magnetic storage media. No chart recorders are used with these monitors. The company uses QA procedures which allow for proper data collection.

2.7.4 AQCR 143 - EASTERN MONTANA

AQCR 143 makes up the eastern third of Montana. Rolling glaciated plains cover the northern half of the region while rolling sedimentary plains cover the southern half. The Missouri River cuts from west to east in a deep valley in the glaciated northern half of the region while the Yellowstone River travels to the northeast in a wide but shallower valley through the southern half. The terrain is often quite rough but generally does not produce noticeable terrain effects on the meteorology and climatology of this region.

The weather is typical of the northern Great Plains with hot dry summers and cold dry winters. Chinooks occur but are not as frequent as they are in AQCR 141. Precipitation totals are generally low throughout the region with thunderstorms producing a significant amount of the total precipitation. The wind patterns here can be characterized by existing off-site measurements and are usually westerly. Dispersion in this region is excellent as a rule. Shallow and short-lived inversions are frequent especially

in the southern part of the region.

2.7.4.1 ROSEBUD COUNTY

Meteorological monitoring in Rosebud County centers around Montana Power Company's coal-fired power plants in Colstrip. MPC operates three meteorological sites. These are at MPC #1 (30-087-0701), MPC #2 (30-087-0702), and MPC #3 (30-087-0700). MPC sites #1 through #3 are located adjacent to MPC's SO_2 and NO_2 continuous monitoring sites, respectively. The data is used to review meteorological conditions that may cause elevated readings.

2.7.5 AQCR 144 - NORTHWESTERN MONTANA

AQCR 144 makes up the northwestern corner of Montana and is entirely west of the Continental Divide. The terrain here is uniformly mountainous as is AQCR 142 but the valleys are generally narrower and lower than the valleys of AQCR 142. The mountain ranges and valleys here also run from the north to the south with the mountaintops thousands of feet higher than the valley floors. The area is drained by the Clark Fork and Kootenai Rivers and includes all of the Flathead and Bitterroot drainage.

The strong Pacific influence and mountainous terrain in the region substantially impact the weather. Precipitation amounts here are the highest in the State and the winters are also warmer and wetter. Winds along the mountaintops are generally westerly and frequently will not reach down into the north-south valleys. Inversions are frequent, and during the fall and winter can persist for many days. Warm Pacific air frequently overrides colder air trapped in the valleys producing severe inversions several thousands of feet deep causing poor pollutant dispersion. This allows small emission sources to produce localized areas of poor air quality because dispersion potential in this region is the lowest in the State. Wind speed and direction patterns in this region are highly localized and cannot be adequately characterized by off-site measurements.

2.7.5.1 MISSOULA COUNTY

Meteorological monitoring in Missoula was conducted at the Missoula City-County Health Department's CO site at Malfunction Junction (30-063-0005). The meteorological sensors were on a six foot tripod on top of the sampling shelter.

Due to the multiple use conditions at the fairgrounds (where the site was located) and safety reasons, it was impossible to install and guy a 10 meter tower at this site. The Department and

Missoula County decided that met data collection would be stopped on April 1, 1993, since the data collected with the tripod could not be used for dispersion modeling purposes. The absence of met data at the Malfunction Junction site is not a serious problem since nearly all of the CO NAAQS exceedances in Missoula have occurred under stagnant air conditions.

As part of the H_2S and NOx monitoring network at Stone Container met data is collected at the Moccasin Lane site, Stone Container #1A (30-063-034). The meteorological site utilizes a 10 meter tower and meets all siting requirements.

3.0 NETWORK MODIFICATIONS

As stated in the introduction, the Department must conduct a review (1) to determine if the system (monitoring network) meets the monitoring objectives defined in Appendix D of CFR Part 58, and (2) to identify needed modifications of the network, such as the termination or relocation of unnecessary stations or the establishment of new stations which are necessary.

The Department is also required to develop and implement an annual schedule modifying the network in order to eliminate any unnecessary stations or to correct any inadequacies indicated by the results of the annual review. The Department must consult with the Regional Administrator of EPA during the development of the schedule to modify the monitoring program. The final schedule and modifications are subject to the approval of the Regional Administrator.

The regional office of the EPA (Region VIII) established a procedure and form to use to document and request modifications to the network. This form is known as the Network Modification Request Form. The State is required to submit this form in advance requesting EPA approval of any proposed network modification.

Network modifications conducted during 1994 and 1995 are listed in Table 1. These modifications and any recent discussions about the sites (including future considerations) are underlined. Summaries of EPA's responses follow the Department's requests. In some cases, the Department has filled out network modification request forms to document the location and features of a site. When there have been no requested modifications, EPA has not responded.

4.0 AIR MONITORING EQUIPMENT NEEDS

The Department operates various equipment to measure pollutants and meteorological parameters at monitoring sites across Montana. The Department also uses shelters, calibrators and various other equipment and devices in support of that monitoring. As the equipment becomes old, it often needs to be upgraded or replaced. When the Department adds sites to its network, new equipment must be purchased. Each year the Department budgets money to purchase new and replacement equipment.

During the past two fiscal years, the Department has purchased several pieces of equipment. These are listed in Tables 3 and 4. In fiscal year 1994, the Department spent a total of $80,369 on air monitoring equipment. This included $30,040 for replacement items and $50,329 for new equipment. In fiscal year 1995, the Department spent a total of $89,941 on air monitoring equipment. This included $17,628 for replacement items and $72,313 for new equipment.

Table 5 is a list of air monitoring equipment that is currently used at state and county operated sites, or will be used at proposed sites. The table also includes equipment used/needed for special projects. The table also includes equipment used or needed for special projects. The table lists equipment, manufacturer, model, acquisition date, condition and replacement costs at each site. As requested by EPA, an equipment replacement plan is provided in the table. In FY 96, FY 97, and FY 98 the Department intends to spend $80,000-100,000 each year for new or replacement equipment. Depending on funding availability, the Department may spend more or less for replacement equipment in the next three fiscal years.

5.0 SUMMARY AND CONCLUSIONS

5.1 EXECUTIVE SUMMARY

Each year the Department is required to develop and implement an annual schedule modifying its air monitoring network in order to eliminate any unnecessary stations or to correct any inadequacies indicated by the results of the annual review. The Department must consult with the Regional Administrator of EPA during the development of the schedule to modify the monitoring program. The final schedule and modifications are subject to the approval of the Regional Administrator.

During 1995, the Department and county agencies operated 25 air monitoring stations. Some of the stations collected multiple parameters. There were 21 PM_{10} sites, 4 CO sites, 2 SO_2 sites, 4 TSP/lead sites, and 4 meteorological monitoring sites. The Department also relies on companies to monitor air quality around their own facilities. Company monitors listed in this report are mostly those required by Prevention of Significant Deterioration (PSD) permits or needed to assess ambient levels in or near federally designated non-attainment areas.

In 1994 and 1995, the Department listed 30 goals or modifications of the network. To date, the Department has implemented 24 of these goals. Some proposed new sites were not installed due to funding, equipment and personnel limitations. For 1996, the Department has listed 35 goals or modifications to the network. Some of these goals remain from the year before.

5.2 HISTORICAL SUMMARY

The Montana ambient air quality network has undergone many changes from 1986 to 1995. The majority of the changes involved particulate monitoring. In the mid 1980's the Department had a large network of TSP samplers in the State. These were located in large communities, small communities and near problem areas. On July 31, 1987, the EPA promulgated a new standard for PM_{10}. Several areas in Montana were designated Group I (greater than 95% probability of exceeding the standard) and Group II (between 20% and 95% probability of exceeding the standard). These designations required the Department to do daily sampling in the Group I areas and every other day sampling at the Group II areas. As a consequence, many of the TSP sites were discontinued and PM_{10} samplers were moved to allow adequate coverage in the Group I and II areas. In 1993, the first PM_{10} saturation study was conducted in Whitefish. Also, the nephelometers, used by the county air agencies to operate episodic curtailment programs, were replaced by state-of-the-art continuous PM_{10} samplers (TEOMS).

The next biggest change came in the SO_2 monitoring network in the Billings/Laurel area. In early 1987, the Department was nearly out of the SO_2 monitoring business in Yellowstone County. This was mostly due to personnel cutbacks and prioritization of resources. Due to legislative funding and the creation of the Billings/Laurel Air Quality Technical Committee, renewed emphasis was placed on SO_2 monitoring.

Two dispersion modeling studies resulted in the establishment of an EPA approved modeled maximum SO_2 site, Sacrifice Cliff, in Billings. Two additional industry operated SO_2 sites, South Johnson Lane and Pine Hills, were installed at the end of 1993. Both were sited as a result of dispersion modeling. Currently there are seven SO_2 sites operating in Billings-Laurel-Lockwood area.

In April 1991, the EPA notified the Department that the East Helena SO_2 SIP was inadequate. As a result of the dispersion modeling performed for the SIP revision the SO_2 monitoring network was greatly expanded. There are now 13 SO_2 sites operating around the ASARCO lead smelter.

In October 1988, the EPA notified the Department that the East Helena lead SIP was inadequate. As a result, the lead monitoring network needed to be expanded in support of the SIP development process. At present, there are four lead monitoring stations around East Helena.

For carbon monoxide, the size of the network has stayed the same but adjustments have been made to locate sites in microscale maximum concentration sites. As a result of the December 1991 saturation study, the Billings Metra CO site was shut down and two new microscale CO sites were established in Billings. The downtown CO site was initially in the Diamond Parking lot, but when that property closed the Department and YCAPC relocated the CO site across 27th Street and further south on 27th Street to the NorWest parking lot.

The CO site in Great Falls was also moved to accommodate the microscale siting requirement. A CO saturation study was conducted in January 1992 which confirmed that the current CO site in Great Falls is at the maximum concentration location.

In Missoula, the Department shut down one of two CO sites: (1) to economize resources and (2) because adequate maximum concentration coverage was provided with the one site. These actions were confirmed by a saturation study conducted in December 1992.

The Department conducted a CO saturation study during the winter of 94-95 in Kalispell. Subsequently, the Department is

proposing to locate a CO analyzer in Kalispell. In the winter of 95-96, the Department is also proposing a CO saturation study in Butte.

With each successive network review, the Department will continue to refine its network. This document shows (in part) that the Department will continue to cooperate with industries and will rely on their resources to conduct monitoring associated with their sources. This is evident in East Helena (Pb & SO_2 monitoring), Billings (SO_2 monitoring), Colstrip (PM_{10}, SO_2 and NO_2 monitoring) and Missoula (PM_{10} monitoring).

Appendix C contains historical data summaries in graphic form for pollutants of current interest.

5.3 CURRENT AIR MONITORING NETWORK

During 1995, the Department and county agencies operated 25 air monitoring stations. Some of the stations collected multiple parameters. There were 21 PM_{10} sites, 4 CO sites, 2 SO_2 sites, 4 TSP/lead sites and 4 meteorological monitoring sites. Table 2 provides a "short list" of the current air monitoring stations operated by State and county governments.

There are also several sites on Table 2 that are operated by companies around their facilities. The companies are generally required to operate these sites because of Prevention of Significant Deterioration (PSD) permits or because they are in or near areas designated non-attainment of a National Ambient Air Quality Standard (NAAQS).

5.4 EQUIPMENT STATUS

As mentioned in Section 4.0 AIR MONITORING EQUIPMENT NEEDS, the Department operates various equipment to measure pollutants and meteorological parameters at monitoring sites across Montana. During the past two fiscal years, the Department has purchased several pieces of equipment. In fiscal year 1994, the Department spent a total of $80,369 on air monitoring equipment. This included $30,040 for replacement items and $50,329 for new equipment. In fiscal year 1995, the Department spent a total of $89,941 on air monitoring equipment. This included $17,628 for replacement items and $72,313 for new equipment.

During the next three fiscal years the Department plans to spend approximately $80,000-100,000 each year to purchase equipment. The Department will purchase equipment depending on the availability of funding and the priority placed on establishing new sites. The Department remains committed to upgrading its system,

maintaining a high level of equipment dependability, and achieving a high level of data quality and data quantity (percent data recovery), by using the best available equipment.

5.5 NETWORK MODIFICATIONS FOR FY94 & FY95

Table 6 lists the network modifications goals for fiscal year 1994 and 1995. A status statement is written below each of the goals. Of the 30 items listed, the Department has completed 24. Of the completed items, the most numerous are site modifications for PM_{10} areas. Major highlights include:

- added one TSP/Pb and three PM_{10} (hivol) sites to the network;
- installed continuous PM_{10} monitors (TEOM) @ Helena, Butte, Kalispell, and Libby;
- cooperated with the USFS on installing two PM_{10} sites, trained USFS operators, and transferred the data to AIRS;
- transferred PM_{10} filter weighing and processing from county labs to state lab to improve data quality;
- conducted Kalispell CO saturation study;
- relocated CO and PM_{10} site in Billings due to cancellation of the site lease; and
- conducted PM_{10} saturation and CMB studies in Whitefish.

The Department also needs to purchase the necessary equipment and determine if personnel resources are available for these proposed sites.

5.6 NETWORK MODIFICATIONS FOR FY96

Table 7 lists the network modification goals for fiscal year 1996. There are 33 items on this list which details studies, changes or modifications in the network. Major goals include:

- switching to TEOM samplers for compliance PM_{10} monitoring with modem access for episode tracking and other data transfer;
- new TEOM sites in Whitefish and Kalispell;
- new CO monitoring site in Kalispell;
- Billings area ozone monitoring;
- Butte CO saturation study; and
- Columbia Falls PM_{10} saturation study.

This list contains some of the items not completed in FY95. Carryover items include the Butte CO saturation study and installing a PM_{10} site in northern Jefferson County.

The Department also plans to add several PM_{10} sites to its network. Establishment of these sites is dependent on equipment

availability and personnel resources. Proposed locations include Ashland, Lincoln, West Yellowstone, Montana City, Sidney, Lewistown, Superior, and Dillon.

The Department plans to upgrade or replace equipment at several of its monitoring stations. These proposed purchases are listed as goals in Table 5. Additional purchases will be made through the year and equipment will be replaced as the State budget and EPA funding allows.

APPENDIX A: TABLES FOR NETWORK REVIEW

TABLE 1

MONTANA AMBIENT AIR MONITORING NETWORK

AIRS Number	Site Name/Address City/County	Parm	Year of Record	Station Type	Spatial Scale	Monitoring Objective*
30-001-XXXX	Industrial Area Dillon/Beaverhead	PM_{10}	95	SPM	Neigh.	S
	This is a proposed PM_{10} site near the industrial area south of Dillon. Depending on resources and equipment availability, the Department might install a PM_{10} sampler in this area.					
30-007-XXXX	Townsend urban area Townsend/Broadwater	PM_{10}	95	SPM	Neigh.	P
	A proposed new site in the Townsend downtown area. Monitoring is needed because of rapid growth and the lack of a data base.					
30-013-0009	Fire Station #1 Great Falls/Cascade	PM_{10}	88-95	SLAMS	Neigh.	H,P
	The Fire Station site currently supports two Sierra-Anderson SA-321B samplers running at a sample frequency of 1-in-3. No changes are anticipated for this site in 1995-1996.					
30-013-1025	Skyway Conoco Great Falls/Cascade	CO	89-95	SLAMS	Micro.	H,P,S
	The January 1992 CO saturation study results indicated slightly higher CO levels a couple of blocks to the east of Skyway Conoco but the differences					

* H=high concentration, P=high population, S=source impact, B=background

were not significant. An attempt was made to secure permission to move the site to the east but Cascade County could not get permission from the landowners. Therefore, the Skyway Conoco site will remain where it is and there are no plans for a second CO site in Great Falls.

30-027-XXXX	Lewistown urban area Lewistown/Fergus	PM_{10}	95	SPM	Neigh.	P

A proposed new site in the Lewistown downtown area. The last monitoring in Lewistown was for TSP in 1983. PM_{10} monitoring will provide an updated data base.

30-029-XXXX	Central Flathead Valley Kalispell/Flathead	PM_{10}	95	SPM	Urban	B

This is a proposed new site to be utilized as a background site for the Flathead Valley. All the current sites in the Flathead Valley are in non-attainment areas or located as SPM sites for monitoring immediate area sources. This site is needed to determine the PM_{10} background levels in the valley that are influencing other sites. The chosen location should be away from local influences, but centrally located between the three non-attainment areas of Kalispell, Whitefish, and Columbia Falls.

30-029-XXXX	Bigfork area Bigfork/Flathead	PM_{10}	95	SPM	Neigh.	P

A proposed new site in Bigfork which will provide a PM_{10} data base for this area. Monitoring is needed because of rapid growth, lack of data, residential wood combustion, and dirty streets.

30-029-0003	Col. Falls Jr. High Columbia Falls/ Flathead	PM_{10}	85-95	SLAMS	Neigh.	H,P

PM_{10} monitoring started April 1987 and has continued to the present. The

Jr. High site supports three Wedding PM_{10} samplers that run 1-in-2 and 1-in-6 schedules during the 1st/4th quarters and 2nd/3rd quarters, respectively. The old Wedding samplers may be replaced with Sierra Anderson SA-321B PM_{10} samplers in the near future depending on available resources.

30-029-0039 Markus Foods PM_{10} 91-95 SLAMS Neigh. H,P
Whitefish/Flathead

The Markus Foods PM_{10} site, started on April 30, 1991, is located in the Whitefish central business district. The Department installed this site due to public concern and Whitefish's proximity to other PM_{10} non-attainment areas at Kalispell and Columbia Falls.

Numerous exceedances have been measured at the Markus Foods site since PM_{10} sampling began. Whitefish was officially designated a non-attainment area in October 1993. To verify the Markus Foods site as the maximum concentration site a PM_{10} saturation study was conducted during February, March, and April 1993. The study confirmed that the Markus Foods site is within the maximum concentration area.

The Markus Foods site supports three Sierra Anderson SA-321B samplers which operate on a 1-in-2 and a 1-in-6 schedule during the 1st/4th, and 2nd/3rd quarters, respectively. The Markus Foods site may become a collocated in 1995 depending on resources. In 1995, this site is also scheduled to become a site for a TEOM. The TEOM will become the primary SLAMS site monitor in 1995. The TEOM will be situated in a special outdoor enclosure and linked to the AQD via modem for data recovery and equipment monitoring. The Flathead County Environmental Health Department will perform all necessary minor maintenance and flow checks.

30-029-0041 Patterson Corral PM_{10} 93-94 SPM Neigh. B
Whitefish/Flathead

This special purpose monitoring site was established to serve as the background site for the Whitefish chemical mass balance study. It was located approximately 1 1/2 miles directly east of Whitefish in an alfalfa

field next to a corral. It consisted of a single SA1200 sampler that ran on a 1-in-6 schedule. Monitoring at this site was discontinued in April 1994.

30-029-0043 Evergreen Fire Station PM_{10} 94-95 SPM Neigh. H,P,S
Kalispell/Flathead

PM_{10} sampling started at the Evergreen site in June 1994. The site is located next to U.S. Highway 2 and supports one Sierra Anderson SA-1200 sampler. Thus far low to mid-range PM_{10} values have been recorded. In 1995 this site will have a second SA-1200 sampler installed to accommodated more frequent sampling.

30-029-1015 Universal Athletics PM_{10} 85-95 SLAMS Neigh. H,P
Kalispell/Flathead

PM_{10} sampling began in April 1987 and has continued since. The UA site currently supports three Sierra Anderson SA-321B samplers which operate on a 1-in-2 and 1-in-6 schedule during the 1st/4th quarters and 2nd/3rd quarters, respectively. This site may become a collocated site in 1995 depending on resources. In 1995 this site will become the new location for the TEOM currently located and the East Maintenance Building site (30-029-1018). The TEOM will be situated in a special outdoor enclosure and linked to the AQD via modem for data recovery and equipment monitoring. The TEOM will become the primary SLAMS site monitor in 1995. The Flathead County Environmental Health Department will perform all necessary minor maintenance and flow checks.

30-029-XXXX Idaho and Main St. CO 95 SPM Micro. H,P
Kalispell/Flathead

This is a new CO site being planned for the busy intersection of U.S Highway 93 and U.S. Highway 2 (Idaho Ave & Main St). The exact location will be determined after a review of the CO saturation study conducted from mid-December 1994 through mid-January 1995. Network modification request forms will be sent to EPA for their approval. The probability of this site

being installed depends on resources, equipment availability, and obtaining a site lease.

30-029-1018 **E. Maintenance Building** **PM_{10}** **93-95** **SPM** **Neigh.** **P**
Kalispell/Flathead

The main purpose of this site is to collect PM_{10} data with a high volume sampler to compare with PM_{10} data collected with a continuous TEOM sampler.

Both TEOM and PM_{10} data collection was started in October 1993. The TEOM was linked with a modem in 1995 for monitoring purposes. The TEOM monitor will be discontinued at this site during 1995 and moved to a higher concentration area located at the Universal Athletics site (30-029-1015).

30-031-XXXX **West Yellowstone area** **PM_{10}** **95** **SPM** **Neigh.** **P**
W. Yellowstone/Gallatin

A proposed new site with strong USFS and NPS interest. Monitoring is needed because of the lack of data and concerns about emissions from snowmobiles, residential wood combustion, and dirty streets.

30-031-XXXX **Big Sky Resort** **PM_{10}** **95** **SPM** **Neigh.** **P**
Big Sky/Gallatin

A proposed new site. This site is needed because of the lack of a data base in an area which is projected to grow rapidly.

30-031-0002 **East Main City Bldg.** **PM_{10}** **85-95** **SLAMS** **Neigh.** **H,P**
Bozeman/Gallatin

PM_{10} sampling began in April 1987 and has continued since in one of the fasted growing cities in Montana.

The East Main site currently supports two Sierra Anderson SA-321B samplers which operate on a 1-in-2 and 1-in-6 schedule during the 1st/4th quarters

and 2nd/3rd quarters, respectively. No changes are planned for this site in 1995-1996.

30-031-0008 Belgrade ConAgra PM_{10} 91-95 SLAMS Neigh. H,P
Belgrade/Gallatin

This PM_{10} site was installed in an open field behind the Belgrade ConAgra elevators near residential areas and began operation in October 1991.

The site currently supports two Sierra Anderson SA-1200 samplers which operate on a 1-in-2 and 1-in-6 schedule during the 1st/4th and 2nd/3rd quarters, respectively. The Department intends to continue the status quo for the foreseeable future.

30-031-0009 YNP-West Entrance PM_{10} 94-95 SPM Micro. P,B
West Yellowstone/Gallatin

This PM_{10} site was installed in October 1994 as a micro-scale sampler to monitor PM_{10} concentrations derived mainly from snowmobile traffic at the West Entrance Station of Yellowstone National Park. The sampler was located immediately east of the kiosk (ticket booth) where workers complained of numerous headaches and nausea while at work. The sampler used was a Wedding PM_{10} sampler borrowed by the National Park Service (NPS) from the Bitterroot National Forest in Missoula. The sampler was set up and maintained through a cooperative effort with the NPS and the Department. Data from this site was entered into the AIRS database. The site was discontinued in March 1995 after the park was closed to snowmobile traffic. The NPS also maintained two MFC Sierra-Anderson samplers, one CO analyzer and one TEOM PM_{10} sampler independent of this site. The PM_{10} samples from this site were consistently very low.

30-043-XXXX Montana City Area PM_{10} 95 SPM Neigh. P,S
Montana City/Jefferson

The Montana City School is a proposed location for a PM_{10} site located in the northern most end of Jefferson County near East Helena. The Ashgrove

cement plant is located a short distance northeast of this site and ASARCO to the north. This area is a fast growing residential community with influence from residential wood combustion that may directly impact the Helena area (southern end of Lewis & Clark County) during winter.

30-043-0903 Microwave SO_2 74-95 SPM Neigh. H,S
Montana City/Jefferson

This is an older site where the state and ASARCO measured TSP, Pb, and SO_2 for several years. EPA approved this site as a SLAMS site in an undated letter (received 1-14-91). This site was operated as a background site for lead for the East Helena lead SIP. Since data needs were met and concentrations were low, the Department terminated TSP and Pb at this site on 6-30-91. ASARCO continues to collect SO_2 data at this site.

30-043-0908 Ash Grove Siding SO_2 89-95 SPM Neigh. S
Montana City/Jefferson

This site is operated by ASARCO and is part of their network around their primary lead smelter. The Department formally documented this site using the network modification request forms (letter and forms dated 6-27-90).

EPA approved this site as a SLAMS equivalent special purpose monitor (SPM). in an undated letter (received 1-14-91). This site continues to operate.

30-043-0909 Top of Microwave SO_2 93-95 SPM Neigh. H,S
Montana City/Jefferson

This site is operated by ASARCO. In 1992, dispersion modeling was performed as part of the SIP revisions. That modeling indicated that potentially high ambient SO_2 levels were occurring in the elevated terrain to the southwest of the smelter in Jefferson County. As a result the ambient SO_2 monitoring network was significantly revised in the spring of 1993. Once the SIP is approved and the control measures implemented the SO_2 monitoring network will be reduced to only those sites necessary to adequately monitor the maximum SO_2 impact areas.

30-043-0910 **McClellan Creek Road#3** **SO_2** **93-95** **SPM** **Neigh.** **H,S**
Montana City/Jefferson

This site is operated by ASARCO. In 1992, dispersion modeling was performed as part of the SIP revisions. That modeling indicated that potentially high ambient SO_2 levels were occurring in the elevated terrain to the southwest of the smelter in Jefferson County. As a result the ambient SO_2 monitoring network was significantly revised in the spring of 1993. Once the SIP is approved and the control measures implemented the SO_2 monitoring network will be reduced to only those sites necessary to adequately monitor the maximum SO_2 impact areas.

30-043-0911 **McClellan Creek Road#4** **SO_2** **93-95** **SPM** **Neigh.** **H,S**
Montana City/Jefferson

This site is operated by ASARCO. In 1992, dispersion modeling was performed as part of the SIP revisions. That modeling indicated that potentially high ambient SO_2 levels were occurring in the elevated terrain to the southwest of the smelter in Jefferson County. As a result the ambient SO_2 monitoring network was significantly revised in the spring of 1993. Once the SIP is approved and the control measures implemented the SO_2 monitoring network will be reduced to only those sites necessary to adequately monitor the maximum SO_2 impact areas.

30-043-0912 **McClellan Creek Road#5** **SO_2** **93-95** **SPM** **Neigh.** **H,S**
Montana City/Jefferson

This site is operated by ASARCO. In 1992, dispersion modeling was performed as part of the SIP revisions. That modeling indicated that potentially high ambient SO_2 levels were occurring in the elevated terrain to the southwest of the smelter in Jefferson County. As a result the ambient SO_2 monitoring network was significantly revised in the spring of 1993. Once the SIP is approved and the control measures implemented the SO_2 monitoring network will be reduced to only those sites necessary to adequately monitor the maximum SO_2 impact areas.

30-043-0913 **McClellan Creek Road#6** **SO_2** **93-95** **SPM** **Neigh.** **H,S**
Montana City/Jefferson

This site is operated by ASARCO. In 1992, dispersion modeling was performed as part of the SIP revisions. That modeling indicated that potentially high ambient SO_2 levels were occurring in the elevated terrain to the southwest of the smelter in Jefferson County. As a result the ambient SO_2 monitoring network was significantly revised in the spring of 1993. Once the SIP is approved and the control measures implemented the SO_2 monitoring network will be reduced to only those sites necessary to adequately monitor the maximum SO_2 impact areas.

30-043-0914 **McClellan Creek Road#7** **SO_2** **93-95** **SPM** **Neigh.** **H,S**
Montana City/Jefferson

This site is operated by ASARCO. In 1992, dispersion modeling was performed as part of the SIP revisions. That modeling indicated that potentially high ambient SO_2 levels were occurring in the elevated terrain to the southwest of the smelter in Jefferson County. As a result the ambient SO_2 monitoring network was significantly revised in the spring of 1993. Once the SIP is approved and the control measures implemented the SO_2 monitoring network will be reduced to only those sites necessary to adequately monitor the maximum SO_2 impact areas.

30-043-0915 **McClellan Creek Road#8** **SO_2** **93-95** **SPM** **Neigh.** **H,S**
Montana City/Jefferson

This site is operated by ASARCO. In 1992, dispersion modeling was performed as part of the SIP revisions. That modeling indicated that potentially high ambient SO_2 levels were occurring in the elevated terrain to the southwest of the smelter in Jefferson County. As a result the ambient SO_2 monitoring network was significantly revised in the spring of 1993. Once the SIP is approved and the control measures implemented the SO_2 monitoring network will be reduced to only those sites necessary to adequately monitor the maximum SO_2 impact areas.

30-043-0916	**McClellan Creek Road#9 Montana City/Jefferson**	**SO_2**	**93-95**	**SPM**	**Neigh.**	**H,S**

This site is operated by ASARCO. In 1992, dispersion modeling was performed as part of the SIP revisions. That modeling indicated that potentially high ambient SO_2 levels were occurring in the elevated terrain to the southwest of the smelter in Jefferson County. As a result the ambient SO_2 monitoring network was significantly revised in the spring of 1993. Once the SIP is approved and the control measures implemented the SO_2 monitoring network will be reduced to only those sites necessary to adequately monitor the maximum SO_2 impact areas.

30-049-0001	**Cogswell Building Helena/Lewis & Clark**	**PM_{10}**	**85-95**	**SLAMS**	**Neigh.**	**P**

PM_{10} sampling began in April 1987 and has continued since. The Cogswell site currently supports one Sierra Anderson SA-321B sampler operating at a frequency of 1-in-6. No changes are planned for this site in 1995-1996.

30-049-0018	**Lincoln School Helena/Lewis & Clark**	**PM_{10}**	**91-95**	**SLAMS**	**Neigh.**	**H,P**

The Lincoln School site is operated by the Lewis & Clark County Health Department for their winter-time residential wood burning curtailment program.

The Lincoln School site currently supports two Sierra Anderson SA-321B samplers and a TEOM continuous PM_{10} monitor. The TEOM was installed in October 1993 it will become the primary SLAMS monitor in 1995. One of the two SA-321B samplers will remain on site running at a sample frequency of 1-in-6 year-round. The other sampler will be used for monitoring elsewhere in the Helena vicinity at a location left to the discretion of the Lewis & Clark County Environmental Health Department pending approval of the Department.

30-049-XXXX	Lincoln area Lincoln/Lewis & Clark	PM_{10}	95	SPM	Neigh.	P

The Lincoln area is a new area proposed for PM_{10} monitoring. Lincoln is typical of many western Montana small towns located in mountainous areas, it's in a deep, narrow valley with limited air dispersion and with little control over open or residential wood burning. The Lincoln area typically experiences numerous inversions and poor visibility during the winter months. Also, Lincoln is the location for a proposed open-pit gold mine and pre-mining impact data is needed in the area.

30-049-0701	Kleffner Road East Helena/Lewis & Clark	SO_2	74-95	SPM	Neigh.	H,S

This site is operated by ASARCO and is part of their network around their primary lead smelter. EPA approved this site as a "SLAMS equivalent" special purpose monitor (SPM) in an undated letter (received 1-14-91). This site continues to operate.

30-049-0702	Water Tank East Helena/Lewis & Clark	SO_2	74-95	SPM	Neigh.	H,S

This site is operated by ASARCO and is part of their network around their primary lead smelter. EPA approved this site as a "SLAMS equivalent" special purpose monitor (SPM) in an undated letter (received 1-14-91). This site continues to operate.

30-049-0703	Kennedy Park East Helena/Lewis & Clark	SO_2	74-95	SPM	Neigh.	H,S

This site is operated by ASARCO and is part of their network around their primary lead smelter. EPA approved this site as a "SLAMS equivalent" special purpose monitor (SPM) in an undated letter (received 1-14-91).

This site continues to operate.

30-049-0714	**Firehall East Helena/Lewis & Clark**	**TSP**	**81-95**	**SLAMS**	**Neigh.**	**H,P,S**
		Pb	**81-95**	**SLAMS**	**Micro.**	**H,P,S**

The Firehall site currently supports two samplers run at a frequency of 1-in-2. This site recorded Pb concentrations exceeding the NAAQS numerous times and is currently the maximum Pb concentration site in East Helena. The Prickly Pear site (30-049-0727), which is two blocks to the east, is the modeled high concentration Pb site (after all SIP control measures are implemented). In addition to the current Pb analysis other metals will be measured from filters collected at this site in 1995 and 1996.

30-049-0719	**Hadfield East Helena/Lewis & Clark**	**TSP**	**81-93**	**SLAMS**	**Neigh.**	**H,P,S**
		Pb	**81-93**	**SLAMS**	**Micro.**	**H,P,S**
		PM_{10}	**88-93**	**SLAMS**	**Neigh.**	**H,P**

The Hadfield site measured many exceedances of the Pb standard over the years, but data analysis revealed that the Firehall site recorded higher Pb concentrations. The Department decided to relocate the samplers after having problems with the site lease and a temporary shutdown for a Superfund mandated soil removal project. In a 2/10/93 letter to EPA, the Department requested shutdown of the Hadfield PM_{10} site. This request was approved in a 3/30/93 letter and the site was discontinued effective April 1, 1993. This TSP/Pb site was terminated in June 1993 and moved to the current Prickly Pear site (30-049-0727).

30-049-0724	**Dartman Field East Helena/Lewis & Clark**	**TSP**	**83-95**	**SLAMS**	**Neigh.**	**H,S**
		Pb	**83-95**	**SLAMS**	**Neigh.**	**H,S**

This site has been operated as a TSP/Pb site since 1983. There have been some exceedances of the Pb standard at this site, but overall Pb concentrations are lower than those measured at sites in downtown East Helena. The site has operated on a 1-in-6 schedule since 4-1-91 and will continue to operate at that frequency.

30-049-0726	**Old Railroad East Helena/Lewis & Clark**	**TSP**	**89-95**	**SLAMS**	**Neigh.**	**H,S**
		Pb	**89-95**	**SLAMS**	**Neigh.**	**H,S**

This site is located to the east of the Asarco smelter. TSP and Pb monitoring began on 11-6-89. Because of an occasional high reading the Old Railroad site will continue to operate on a 1-in-6 sampling frequency.

30-049-0727	**Prickly Pear Creek E. Helena/Lewis and Clark County**	**TSP**	**93-95**	**SLAMS**	**Neigh**	**H,P,S**
		Pb	**93-95**	**SLAMS**	**Neigh**	**H,P,S**

This site is located at the modeled maximum Pb concentration which is directly north of the ASARCO smelter on the north side of Highway 12 next to Prickly Pear Creek.

When this site began operation in the November 1993 the Hadfield TSP/Pb site was discontinued. The site has collocated samplers which have consistently shown lower Pb concentrations than the Firehall site (30-049-0714). Data analysis is continuing so the maximum Pb concentration site can be correctly located.

30-053-XXXX	Remote area Remote NW MT/Lincoln	PM_{10}	95	SLAMS	Urban	B

A proposed new site. This site is needed as a background site for northwestern Montana. A possible site location will be investigated in this area.

30-053-0012	Lincoln Co. Courthouse Libby/Lincoln	PM_{10}	85-95	SLAMS	Neigh.	H,P

The analysis of more than a years PM_{10} data revealed excellent agreement between the hivol PM_{10} samplers at this site and the TEOM PM_{10} data at the Annex site. As a result, PM_{10} sampling was discontinued at this site on 04/01/95. Future PM_{10} monitoring will be conducted with the TEOM PM_{10} continuous monitor in the Courthouse Annex building. One of the SA-321B samplers will be moved to the Courthouse Annex site (30-053-0018) for backup sampling and TEOM data analysis purposes.

30-053-0018	Courthouse Annex Libby/Lincoln	PM_{10}	93-95	SLAMS	Neigh.	H,P

A continuous PM_{10} sampler (TEOM) replaced the nephelometer at this site in October 1993. The continuous data from this unit has been reported to AIRS since start-up. The TEOM is used for the local mandatory residential wood burning curtailment program. The TEOM is modem linked to the AQD for maintenance and monitoring purposes. The Lincoln County Environmental Health Department performs minor maintenance.

The analysis of more than a years PM_{10} data collected with the TEOM sampler at this site and the hivol samplers at the Courthouse site (30-053-0012) a block away revealed excellent agreement. As a result, all future PM_{10} compliance monitoring will be conducted with the TEOM sampler at this site. One Sierra-Anderson SA-321B sampler from the Courthouse site will be installed at this site for backup sampling purposes.

30-053-0019	**Troy School** **Troy/Lincoln**	**PM_{10}**	**91-95**	**SLAMS**	**Neigh.**	**H,P**

This PM_{10} site was installed at the Troy School in September 1991. Concentrations have been low over a three year sampling period. The Troy site was terminated on June 30, 1995, and the two SA-1200 samplers were moved elsewhere as needed.

30-061-XXXX	**Superior area** **Superior/Mineral**	**PM_{10}**	**95**	**SPM**	**Neigh.**	**P**

A proposed new site. This site is needed because of the lack of a data base, and emissions from residential wood combustion, and dirty streets.

30-063-XXXX	**Bonner industrial area** **Bonner/Missoula**	**PM_{10}**	**95**	**SPM**	**Neigh.**	**P,S**

A proposed new site. This site is needed because of poor ventilation, and emissions from the local plywood/sawmill plant.

30-063-XXXX	**Seeley Lake area** **Seeley Lake/Missoula**	**PM_{10}**	**95**	**SPM**	**Neigh.**	**P**

A proposed new site. This site is needed because of lack of a data base, poor ventilation, and emissions from residential wood combustion, dirty street, and projected rapid growth.

30-063-XXXX	**Lolo area** **Lolo/Missoula**	**PM_{10}**	**95**	**SPM**	**Neigh.**	**P**

A proposed new site. This site is needed because the previous data collected in Lolo was not at a maximum concentration site, and because of emissions from dirty streets and residential wood combustion, and poor ventilation.

30-063-XXXX	Frenchtown area Frenchtown/Missoula	PM_{10}	95	SPM	Neigh.	P,S

A proposed new site. This site is needed because of the lack of a data base, population growth, poor ventilation, and emissions from a nearby pulp mill.

30-063-0005	**Malfunction Junction Missoula/Missoula**	**CO**	**79-95**	**SLAMS**	**Neigh.**	**H,P,S**

The site was discontinued during the five summer months from April 1 through August 30 for 1990-1992. Continuous CO monitoring was reinstated in 1993 because eight consecutive quarters of data without a violation must be presented to show attainment for CO. Use of seasonal data to show attainment is not acceptable.

An oxygenated fuels program was started on October 1, 1992, as a CO SIP requirement. A CO saturation study was conducted in December 1992. The results conclusively demonstrated, and EPA agreed, that the Malfunction Junction site is the maximum CO site in Missoula. The site will collect data continuously to support a future redesignation request and there are no plans for a second CO monitoring site in Missoula.

30-063-0016	**Stone #2 Missoula/Missoula**	**PM_{10}**	**92-95**	**SPM**	**Neigh.**	**S**

This company PM_{10} sampler is operated jointly by Missoula County and Stone Container Corporation. PM_{10} sampling will continue in order to measure impacts from the Stone Container pulp mill.

30-063-0024	**Boyd Park Missoula/Missoula**	**PM_{10}**	**84-95**	**SLAMS**	**Neigh.**	**H,P**

The Boyd Park PM_{10} site now operates on a 1-in-6 and a 1-in-1 schedule during the 2nd/3rd and 1st/4th quarters, respectively.

A continuous PM_{10} monitor (TEOM) was installed and began operation in October 1994. This unit replaced a Beta Attenuation Continuous PM_{10} Monitor used by Missoula County Environmental Health Department for their wintertime air pollution alert program. The TEOM is modem linked for maintenance and remote monitoring operations. Minor maintenance is performed by the Missoula County Environmental Health Department. The SA-321B samplers (two reporting and one collocated) will continue to collect data at this site until at least 1996 for TEOM data analysis and comparison purposes.

30-063-0031	**Health Dept. Roof Missoula/Missoula**	**PM_{10}**	**86-95**	**SLAMS**	**Neigh.**	**H,P**

PM_{10} sampling was initiated in September 1986. This site is in the downtown central business district and is considered a maximum concentration site for this part of Missoula. The site now operates on a 1-in-6 sampling schedule year-round.

30-063-0034	**Stone #1A Missoula/Missoula**	**PM_{10}**	**92-95**	**SPM**	**Neigh.**	**S**
		NO_2	**88-92**	**SPM**	**Neigh.**	**H,S**

The PM_{10} sampler is operated jointly by Missoula County and Stone Container Corporation. PM_{10} sampling will continue in order to measure impacts from the Stone Container pulp mill.

NO_2 was being monitored by the Stone Container Corporation as a condition of a permit to burn petroleum coke in their lime kilns. Due to low ambient concentrations and because only one kiln was converted the monitoring was discontinued on June 1, 1992. The NO_2 monitoring will resume if additional kilns are converted to coke.

30-081-0001	**Courthouse Hamilton/Ravalli**	**PM_{10}**	**86-87, 94-95**	**SLAMS**	**Neigh.**	**P**

PM_{10} monitoring was conducted at this site in 1986 and 1987, however, the

site was shutdown because the samplers were needed elsewhere. The Courthouse PM_{10} site was reopened in June 1994 as a result of local complaints and rapid population growth.

30-081-0002 Highway 93/State Hamilton/Ravalli **PM_{10}** **94-95** **SLAMS** **Neigh.** **P,H**

This is a new site located at an assumed higher concentration area than the Courthouse site. The site is situated immediately off of Main Street which is also the main arterial through town. Monitoring started July 31, 1994.

30-081-0003 Stevensville Ranger Sta. Stevensville/Ravalli **PM_{10}** **94-95** **SPM** **Neigh.** **P**

This new site was started in July 1994 and is maintained and operated by the USFS. The USFS-Bitterroot National Forest voluntarily developed this site for the purpose of monitoring prescribed burns and their impacts in the northern end of the Bitterroot Valley. The site supports one SA-1200 sampler and one TEOM sampler enclosed in an all-weather outdoor enclosure. The Department provides technical support, analyses the filters and audits the samplers. The site has reported data to AIRS since start-up.

30-081-0004 West Fork Ranger Sta. Darby/Ravalli **PM_{10}** **94-95** **SPM** **Urban** **B**

This new site was started in July 1994 and is maintained and operated by the USFS. The site is located at the West Fork Ranger Station along the West Fork of the Bitterroot River near Darby. The USFS-Bitterroot National Forest voluntarily developed this site for the purpose of monitoring prescribed burns and their impacts in the southern end of the Bitterroot Valley. The site supports one SA-1200 sampler. The Department provides technical support, processes the filters, and audits the samplers. The site has reported data to AIRS since start-up. The data reported thus far from this remote site indicates near zero concentrations and may be considered a background site for southwest Montana.

30-087-0700	**MPC #3 Colstrip/Rosebud**	**SO_2**	**82-95**	**SPM**	**Neigh.**	**H,P**
		NO_2	**82-95**	**SPM**	**Neigh.**	**H,S**
		PM_{10}	**89-95**	**SPM**	**Neigh.**	**H,P**

This site is operated by the Montana Power Company and is part of their network around their coal-fired power plants. This site is intended to monitor for PM_{10} in the Colstrip TSP secondary non-attainment area. The PM_{10} sampler was installed and began operation in December 1989.

30-087-0701	**MPC #1 Colstrip/Rosebud**	**PM_{10}**	**92-95**	**SPM**	**Neigh.**	**H,S**
		SO_2	**81-95**	**SPM**	**Neigh.**	**H,S**
		NO_2	**81-95**	**SPM**	**Neigh.**	**H,S**

This site is operated by the Montana Power Company and is part of their network around their coal-fired power plants. PM_{10} sampling began on July 2, 1992.

30-087-0702	**MPC #2 Colstrip/Rosebud**	**PM_{10}**	**92-95**	**SPM**	**Neigh.**	**H,S**
		SO_2	**81-95**	**SPM**	**Neigh.**	**H,S**
		NO_2	**81-95**	**SPM**	**Neigh.**	**H,S**

This site is operated by the Montana Power Company and is part of their network around their coal-fired power plants. PM_{10} sampling began on July 2, 1992.

30-087-XXXX	**Ashland Area Ashland/Rosebud**	**PM_{10}**	**95**	**SPM**	**Neigh.**	**P**

This new PM_{10} site is proposed for the town of Ashland. This is a small town on the edge of the Northern Cheyenne Indian Reservation. Local air

pollution sources include a small sawmill, paved and unpaved roads and residential wood combustion.

30-089-0003 **Sanders Co. Courthouse** **PM_{10}** **85-95** **SLAMS** **Neigh.** **H,P**
Thompson Falls/Sanders

PM_{10} sampling began at this non-attainment site in 1985 and has continued since. In 1995, the Courthouse site may include a collocated PM_{10} sampler depending on available resources. The site currently supports three Sierra Anderson SA-321B samplers running on a 1-in-2 and 1-in-6 schedule during the 1st/4th quarters and 2nd/3rd quarters, respectively.

30-093-0005 **Greeley School** **PM_{10}** **85-95** **SLAMS** **Neigh.** **H,P,S**
Butte/Silver Bow

The nephelometer, used for the mandatory residential wood burning curtailment program, was replaced with a continuous PM_{10} monitor (TEOM) in August 1993 and began reporting data to AIRS on 10-1-93.

Sampling at this site with the SA-321B samplers will be decreased to a 1-in-6 schedule year-round. The remaining samplers will be allocated to other sites or new sites as needed. The TEOM will become the primary SLAMS site PM_{10} compliance monitor in 1995.

30-111-XXXX **Worden/Huntley area** **Ozone** **96** **SPM** **Urban** **P,S**
Worden/Yellowstone

A proposed ozone site just east of Billings. This site would operate on a seasonal basis, June through September. The installation and operation of this site in contingent upon obtaining funding.

30-111-0016 **BLAQTC - Laurel** **SO_2** **87-95** **SPM** **Neigh.** **H,S**
Laurel/Yellowstone

This is an industrial site that has been operated by the companies since

December 1987. The Department formally documented the site using the network modification request forms (letter and forms dated 1-5-90). EPA approved the site on 5-14-90 as a "SLAMS equivalent" special purpose monitor (SPM).

30-111-0066	**Coburn Road Billings/Yellowstone**	**SO_2**	**81-95**	**SLAMS**	**Neigh.**	**H,S**

This is a state site that has continuously operated since 1981. The Department formally documented the site using the network modification request forms (letter and forms dated 1-5-90). EPA approved Coburn Road as a SLAMS site on 5-14-90. EPA was concerned about the height of the meteorological monitors particularly if they were to be used for SIP purposes. The Department upgraded the meteorological sensor on 11-14-90. This involved erecting a 10 meter tower across the fence and away from the sampling trailer.

30-111-0078	**Diamond Parking Billings/Yellowstone**	**PM_{10}**	**92-94**	**SLAMS**	**Micro.**	**H,P**
		CO	**92-94**	**SLAMS**	**Micro**	**H,P**

The site was discontinued on April 8, 1994. The property owner canceled the site lease. A new site, NorWest (30-111-0081), was established a short distance from the Diamond Parking Lot site.

30-111-0079	**Mount Olive Billings/Yellowstone**	**CO**	**92-95**	**SLAMS**	**Micro.**	**H,P**
		PM_{10}	**94-95**	**SLAMS**	**Micro.**	**H,P**

The Yellowstone County Air Pollution Control conducted a CO saturation study in December 1991. The study identified two maximum CO concentration areas. The areas are the rapidly growing west side along 24th Street West and the downtown business district along North 27th Street. As a result, the Department and YCAPC installed a CO monitoring site, Mount Olive, located on 24th Street West, just north of Central Avenue. It began operation in November 1992 and was approved by EPA in a letter dated

February 5, 1993. Since the area is currently non-attainment for CO an attainment demonstration still needs to be made. Therefore, this monitor and the one at NorWest will be kept at their current locations in order to collect 8 consecutive quarters of data.

Also, the YCAPC operates one Wedding PM_{10} hivol sampler at this site.

30-111-0080	**Sacrifice Cliff Billings/Yellowstone**	**SO_2**	**93-95**	**SLAMS**	**Neigh.**	**H,S**

As a result of two dispersion modeling studies conducted in the Billings area in 1991 and 1992 the Department installed an SO_2 monitor at the modeled maximum SO_2 "hot-spot" located in the Lockwood area. Both studies indicated high SO_2 levels in the Lockwood area.

The Sacrifice Cliff site was approved by EPA effective May 19, 1993 and started data collection at that time.

30-111-0081	**NorWest Billings/Yellowstone**	**CO**	**94-95**	**SLAMS**	**Micro.**	**H,P**
		PM_{10}	**94-95**	**SLAMS**	**Micro.**	**H,P**

The Diamond Parking Lot site was moved to this location in April 1994, when the property owner canceled the Diamond Parking Lot site lease. The NorWest site was approved by EPA and started data collection on April 25, 1994.

The YCAPC operates one Wedding PM_{10} hivol sampler at this site.

30-111-1065	**BLAQTC - Lockwood Park Billings/Yellowstone**	**SO_2**	**87-95**	**SPM**	**Neigh.**	**H,P,S**

This is an industrial site that has been operated by the companies since December 1987. This site is located in the same area as the Department's old Lockwood Park site (30-111-0065); that site operated from 1981 until January 1987. The Department formally documented the site using the

network modification request forms (letter and forms dated 1-5-90). EPA approved the site on 5-14-90 as a "SLAMS equivalent" special purpose monitor (SPM).

The Department proposes PM_{10} monitoring for this site starting in 1995.

30-111-2005 **BLAQTC - Brickyard Lane** **SO_2** **89-95** **SPM** **Neigh.** **H,P,S**
Billings/Yellowstone

This is an industrial site that has been operated by the companies since 11-8-89. The Department formally documented the site using the network modification request forms (letter and forms dated 1-5-90). EPA approved the site on 5-14-90 as a "SLAMS equivalent" special purpose monitor (SPM).

30-111-2006 **BGI-South Johnson Lane** **SO_2** **93-95** **SPM** **Neigh.** **H,P,S**
Billings/Yellowstone

Dispersion modeling by BGI, required as part of the permitting process, indicated elevated SO_2 levels in the Lockwood area. The Department reviewed and refined the results of the modeling studies and concluded that additional SO_2 monitoring sites were needed. As a result of the permitting process, BGI installed the two SO_2 monitoring sites at the modeled "hot-spots". Johnson Lane is south of I-90 and east of the existing Lockwood Park site.

Data collection started on November 2, 1993, and EPA approved Johnson Lane as a "SLAMS equivalent" special purpose monitor (SPM) site on March 7, 1994. The Department is considering asking BGI to move this site further south on Johnson Lane, because the modeled "hotspot" for that area may have shifted due to changes with the SO_2 point sources.

30-111-2007 **BGI-Pine Hills School** **SO_2** **93-95** **SPM** **Neigh.** **H,P,S**
Billings/Yellowstone

Dispersion modeling by BGI, required as part of the permitting process, indicated elevated SO_2 levels in the Lockwood area. The Department

reviewed and refined the results of the modeling studies and concluded that additional SO_2 monitoring sites were needed. As a result of the permitting process, BGI installed two SO_2 monitoring sites at the modeled "hot-spots". The Pine Hills site is east of the I-90/I-94 junction in the elevated terrain above the Pine Hill School.

Data collection started on November 2, 1993, and EPA approved Pine Hills as a "SLAMS equivalent" special purpose monitor (SPM) site on March 7, 1994.

TABLE 2

MONTANA AMBIENT AIR MONITORING NETWORK (SHORT LIST)

AIRS Number	Site Name/Address City/County	Parm	Year of Record	Station Type	Spatial Scale	Monitoring Objective*
* H=high concentration, P=high population, S=source impact, B=background						
30-001-XXXX	Industrial Area Dillon/Beaverhead	PM_{10}	95	SPM	Neigh.	S
30-007-XXXX	Townsend urban area Townsend/Broadwater	PM_{10}	95	SPM	Neigh.	P
30-013-0009	Fire Station #1 Great Falls/Cascade	PM_{10}	88-95	SLAMS	Neigh.	H,P
30-013-1025	Skyway Conoco Great Falls/Cascade	CO	89-95	SLAMS	Micro.	H,P,S
30-027-XXXX	Lewistown urban area Lewistown/Fergus	PM_{10}	95	SPM	Neigh.	P
30-029-XXXX	Central Flathead Valley Kalispell/Flathead	PM_{10}	95	SPM	Urban	B
30-029-XXXX	Bigfork area Bigfork/Flathead	PM_{10}	95	SPM	Neigh.	P
30-029-0003	Col. Falls Jr. High Columbia Falls/ Flathead	PM_{10}	85-95	SLAMS	Neigh.	H,P
30-029-0039	Markus Foods Whitefish/Flathead	PM_{10}	91-95	SLAMS	Neigh.	H,P

30-029-0041	Patterson Corral Whitefish/Flathead	PM_{10}	93-94	SPM	Neigh.	B
30-029-0043	Evergreen Fire Station Kalispell/Flathead	PM_{10}	94-95	SPM	Neigh.	H,P,S
30-029-1015	Universal Athletics Kalispell/Flathead	PM_{10}	85-95	SLAMS	Neigh.	H,P
30-029-XXXX	Idaho and Main St. Kalispell/Flathead	CO	95	SPM	Micro.	H,P
30-029-1018	E. Maintenance Building Kalispell/Flathead	PM_{10}	93-95	SPM	Neigh.	P
30-031-XXXX	West Yellowstone area W. Yellowstone/Gallatin	PM_{10}	95	SPM	Neigh.	P
30-031-XXXX	Big Sky Resort Big Sky/Gallatin	PM_{10}	95	SPM	Neigh.	P
30-031-0002	East Main City Bldg. Bozeman/Gallatin	PM_{10}	85-95	SLAMS	Neigh.	H,P
30-031-0008	Belgrade ConAgra Belgrade/Gallatin	PM_{10}	91-95	SLAMS	Neigh.	H,P
30-031-0009	YNP-West Entrance West Yellowstone/Gallatin	PM_{10}	94-95	SPM	Micro.	P,B
30-043-XXXX	Montana City Area Montana City/Jefferson	PM_{10}	95	SPM	Neigh.	P,S
30-043-0903	Microwave Montana City/Jefferson	SO_2	74-95	SPM	Neigh.	H,S
30-043-0908	Ash Grove Siding Montana City/Jefferson	SO_2	89-95	SPM	Neigh.	S

30-043-0909	Top of Microwave Montana City/Jefferson	SO_2	93-95	SPM	Neigh.	H,S
30-043-0910	McClellan Creek Road#3 Montana City/Jefferson	SO_2	93-95	SPM	Neigh.	H,S
30-043-0911	McClellan Creek Road#4 Montana City/Jefferson	SO_2	93-95	SPM	Neigh.	H,S
30-043-0912	McClellan Creek Road#5 Montana City/Jefferson	SO_2	93-95	SPM	Neigh.	H,S
30-043-0913	McClellan Creek Road#6 Montana City/Jefferson	SO_2	93-95	SPM	Neigh.	H,S
30-043-0914	McClellan Creek Road#7 Montana City/Jefferson	SO_2	93-95	SPM	Neigh.	H,S
30-043-0915	McClellan Creek Road#8 Montana City/Jefferson	SO_2	93-95	SPM	Neigh.	H,S
30-043-0916	McClellan Creek Road#9 Montana City/Jefferson	SO_2	93-95	SPM	Neigh.	H,S
30-049-0001	Cogswell Building Helena/Lewis & Clark	PM_{10}	85-95	SLAMS	Neigh.	P
30-049-0018	Lincoln School Helena/Lewis & Clark	PM_{10}	91-95	SLAMS	Neigh.	H,P
30-049-XXXX	Lincoln area Lincoln/Lewis & Clark	PM_{10}	95	SPM	Neigh.	P
30-049-0701	Kleffner Road East Helena/Lewis & Clark	SO_2	74-95	SPM	Neigh.	H,S

30-049-0702	Water Tank East Helena/Lewis & Clark	SO_2	74-95	SPM	Neigh.	H,S
30-049-0703	Kennedy Park East Helena/Lewis & Clark	SO_2	74-95	SPM	Neigh.	H,S
30-049-0714	Firehall East Helena/Lewis & Clark	TSP	81-95	SLAMS	Neigh.	H,P,S
		Pb	81-95	SLAMS	Micro.	H,P,S
30-049-0719	Hadfield East Helena/Lewis & Clark	TSP	81-93	SLAMS	Neigh.	H,P,S
		Pb	81-93	SLAMS	Micro.	H,P,S
		PM_{10}	88-93	SLAMS	Neigh.	H,P
30-049-0724	Dartman Field East Helena/Lewis & Clark	TSP	83-95	SLAMS	Neigh.	H,S
		Pb	83-95	SLAMS	Neigh.	H,S
30-049-0726	Old Railroad East Helena/Lewis & Clark	TSP	89-95	SLAMS	Neigh.	H,S
		Pb	89-95	SLAMS	Neigh.	H,S
30-049-0727	Prickly Pear Creek E. Helena/Lewis and Clark County	TSP	93-95	SLAMS	Neigh	H,P,S
		Pb	93-95	SLAMS	Neigh	H,P,S
30-053-XXXX	Remote area Remote NW MT/Lincoln	PM_{10}	95	SLAMS	Urban	B

30-053-0012	Lincoln Co. Courthouse Libby/Lincoln	PM_{10}	85-95	SLAMS	Neigh.	H,P
30-053-0018	Courthouse Annex Libby/Lincoln	PM_{10}	93-95	SLAMS	Neigh.	H,P
30-053-0019	Troy School Troy/Lincoln	PM_{10}	91-95	SLAMS	Neigh.	H,P
30-061-XXXX	Superior area Superior/Mineral	PM_{10}	95	SPM	Neigh.	P
30-063-XXXX	Bonner industrial area Bonner/Missoula	PM_{10}	95	SPM	Neigh.	P,S
30-063-XXXX	Seeley Lake area Seeley Lake/Missoula	PM_{10}	95	SPM	Neigh.	P
30-063-XXXX	Lolo area Lolo/Missoula	PM_{10}	95	SPM	Neigh.	P
30-063-XXXX	Frenchtown area Frenchtown/Missoula	PM_{10}	95	SPM	Neigh.	P,S
30-063-0005	Malfunction Junction Missoula/Missoula	CO	79-95	SLAMS	Neigh.	H,P,S
30-063-0016	Stone #2 Missoula/Missoula	PM_{10}	92-95	SPM	Neigh.	S
30-063-0024	Boyd Park Missoula/Missoula	PM_{10}	84-95	SLAMS	Neigh.	H,P
30-063-0031	Health Dept. Roof Missoula/Missoula	PM_{10}	86-95	SLAMS	Neigh.	H,P

30-063-0034	Stone #1A Missoula/Missoula	PM_{10}	92-95	SPM	Neigh.	S
		NO_2	88-92	SPM	Neigh.	H,S
30-081-0001	Courthouse Hamilton/Ravalli	PM_{10}	86-87, 94-95	SLAMS	Neigh.	P
30-081-0002	Highway 93/State Hamilton/Ravalli	PM_{10}	94-95	SLAMS	Neigh.	P,H
30-081-0003	Stevensville Ranger Sta. Stevensville/Ravalli	PM_{10}	94-95	SPM	Neigh.	P
30-081-0004	West Fork Ranger Sta. Darby/Ravalli	PM_{10}	94-95	SPM	Urban	B
30-087-0700	MPC #3 Colstrip/Rosebud	SO_2	82-95	SPM	Neigh.	H,P
		NO_2	82-95	SPM	Neigh.	H,S
		PM_{10}	89-95	SPM	Neigh.	H,P
30-087-0701	MPC #1 Colstrip/Rosebud	PM_{10}	92-95	SPM	Neigh.	H,S
		SO_2	81-95	SPM	Neigh.	H,S
		NO_2	81-95	SPM	Neigh.	H,S
30-087-0702	MPC #2 Colstrip/Rosebud	PM_{10}	92-95	SPM	Neigh.	H,S
		SO_2	81-95	SPM	Neigh.	H,S
		NO_2	81-95	SPM	Neigh.	H,S
30-087-XXXX	Ashland Area Ashland/Rosebud	PM_{10}	95	SPM	Neigh.	P

30-089-0003	Sanders Co. Courthouse Thompson Falls/Sanders	PM_{10}	85-95	SLAMS	Neigh.	H,P
30-093-0005	Greeley School Butte/Silver Bow	PM_{10}	85-95	SLAMS	Neigh.	H,P,S
30-111-XXXX	Worden/Huntley area Worden/Yellowstone	Ozone	96	SPM	Urban	P,S
30-111-0016	BLAQTC - Laurel Laurel/Yellowstone	SO_2	87-95	SPM	Neigh.	H,S
30-111-0066	Coburn Road Billings/Yellowstone	SO_2	81-95	SLAMS	Neigh.	H,S
30-111-0078	Diamond Parking Billings/Yellowstone	PM_{10}	92-94	SLAMS	Micro.	H,P
		CO	92-94	SLAMS	Micro	H,P
30-111-0079	Mount Olive Billings/Yellowstone	CO	92-95	SLAMS	Micro.	H,P
		PM_{10}	94-95	SLAMS	Micro.	H,P
30-111-0080	Sacrifice Cliff Billings/Yellowstone	SO_2	93-95	SLAMS	Neigh.	H,S
30-111-0081	NorWest Billings/Yellowstone	CO	94-95	SLAMS	Micro.	H,P
		PM_{10}	94-95	SLAMS	Micro.	H,P
30-111-1065	BLAQTC - Lockwood Park Billings/Yellowstone	SO_2	87-95	SPM	Neigh.	H,P,S
30-111-2005	BLAQTC - Brickyard Lane Billings/Yellowstone	SO_2	89-95	SPM	Neigh.	H,P,S
30-111-2006	BGI-South Johnson Lane Billings/Yellowstone	SO_2	93-95	SPM	Neigh.	H,P,S

30-111-2007	BGI-Pine Hills School Billings/Yellowstone	SO_2	93-95	SPM	Neigh.	H,P,S

TABLE 3

MONTANA MAJOR EQUIPMENT PURCHASES FOR FY94

Replacement Items

Quantity	Item Description	Each	Total
2	Wind Vane Assemblies	$ 100	$ 200
24	AirMetrics Retrofit Kits for 2.0 MiniVol Portable Air Samplers	$ 495	$11,880
2	Ekto Air Monitoring Shelters	$8,980	$17,960
	Total of Replacement Items		$30,040

Major New Equipment Purchases

Quantity	Item Description	Each	Total
1	R & P TEOM PM-10 Sampler	$16,860	$16,860
1	Soltec 1241 Strip Chart Recorder	$ 1,450	$ 1,450
2	API 100 SO_2 Analyzers	$ 8,915	$17,829
3	WTC ICIS3 Data Acquisition Systems	$ 3,341	$10,293
3	BIOS DryCal DC-1 Flow Calibrators	$ 1,299	$ 3,897
	Total of New Equipment Purchases		$50,329
	Total of Replacement and New Equipment		**$80,369**

TABLE 4

MONTANA MAJOR EQUIPMENT PURCHASES FOR FY95

Replacement Items

Quantity	Item Description	Each	Total
1	Soltec 1241 Chart Recorder	$ 1,450	$ 1,450
1	API Carbon Monoxide Analyzer	$ 6,998	$ 6,998
1	Ekto Air Monitoring Shelter	$ 9,180	$ 9,180
	Total of Replacement Items		$17,628

Major New Equipment Purchases

Quantity	Item Description	Each	Total
1	R & P TEOM PM-10 Sampler	$16,975	$16,975
2	API 701 Zero Air Generators	$ 9,975	$19,950
2	API 700 Gas Dilution Calibration Systems	$11,250	$22,500
2	R & P Outdoor Instrument Shelters	$ 4,445	$ 8,890
2	BIOS DryCal DC-1 Flow Calibrators	$ 1,999	$ 3,998
	Total of New Equipment Purchases		$72,313
	Total of Replacement and New Equipment		**$89,941**

TABLE 5

MONITORING EQUIPMENT REPLACEMENT AND NEW PURCHASE PLAN

30-001-XXXX
Industrial Area
Dillon/Beaverhead

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
New Equipment	PM-10	1200	Sierra Anderson	1	-----	New	$4,000	-----	-----	-----	

30-007-XXXX
Townsend Area
Townsend/Broadwater

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
New Equipment	PM-10	321B	Sierra Anderson1	2	-----	New	$4,000	-----	-----	-----	

30-013-0009
Fire Station #1
Great Falls/Cascade

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
EPA	PM-10	321B	Sierra Anderson	2	≈ 10/84	Good	$8,000	-----	-----	-----	No current need to replace. Mass flow controllers were replaced with volumetric flow controllers between 8/89 and 10/90.

30-013-1026
Skyway Conoco
GreatFalls/Cascade

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	CO	3003	Dasibi	1	4/81	Good	$10,000	$10,000	-----	-----	
MT	Data Acquisition System	ICIS-3	Western Telecomputing Corporation	1	6/90	Good	$3,500	-----	-----	-----	
MT	Met System	WM-III	Climatronics	1	≈4/79	Fair	$3,000	-----	-----	-----	
MT	Dilution System	3000	EESI	1	3/92	Good	$6,100	-----	-----	-----	
MT	Shelter	-----	EKTO	1	9/92	Good	$7,000	-----	-----	-----	
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	

30-027-XXXX
Lewistown Area
Lewistown/Fergus

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
New Equipment	PM-10	1200	Sierra Anderson	1	-----	New	$4,000	-----	-----	-----	

30-029-XXXX
Central Flathead Valley
Kalispell/Flathead

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
New Equipment	PM-10	1200	Sierra Anderson	1	-----	New	$4,000	-----	-----	-----	

30-029-XXXX
Bigfork Area
Bigfork/Flathead

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
New Equipment	PM-10	321B	Sierra Anderson	1	-----	New	$4,000	-----	-----	-----	

30-029-0003
Col. Falls Jr. High
Columbia Falls/
Flathead

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
MT	PM-10	-----	Wedding & Associates	3	2/87 3/88 7/89	Good	$12,000	-----	-----	-----	

30-029-0039
Markus Foods
Whitefish/Flathead

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
EPA	PM-10	321B	Sierra Anderson	2	10/84	Good	$8,000	-----	-----	-----	No current need to replace. Mass flow controllers were replaced with volumetric flow controllers between 8/89 and 10/90.
MT	Shelter	-----	EKTO	1	7/95	New	$4,500	-----	-----	-----	
MT	PM-10	TEOM	Rupprecht & Patashnick	1	7/95	New	$17,000	-----	-----	-----	

30-029-0043
Evergreen Fire Sta.
Kalispell/Flathead

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
MT	PM-10	1200	Sierra Anderson	2	10/84	Good	$8,000	-----	-----	-----	No current need to replace. Mass flow controllers were replaced with volumetric flow controllers between 8/89 and 10/90.

30-029-1015
Universal Athletics
Kalispell/Flathead

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	TEOM	Rupprecht & Patashnick	1	7/95	New	$17,000	-----	-----	-----	
MT	Shelter	-----	EKTO	1	6/95	New	$4,500	-----	-----	-----	

30-029-XXXX
Idaho & Main St.
Kalispell/Flathead

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	CO	3003	Dasibi	1	6/90	Good	$10,000	-----	$10,000	-----	Dasibi CO analyzer is from current inventory.
MT	Data Acquisition System	ICIS-3	Western Telecomputing Corporation	1	?	Good	$3,500	-----	-----	-----	
MT	Dilution System	700	Advanced Pollution Instrumentation	1	7/95	New	$10,000	-----	-----	-----	
MT	Shelter	-----	EKTO	1	7/95	New	$9,500	-----	-----	-----	
MT	Recorder	1241	Soltec	1	?	Good	$1,450	-----	-----	-----	

30-031-XXXX
West Yellowstone Area
W. Yllstne/Gallatin

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-98	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	1200	Sierra Anderson	2	≈ 10/84	Good	$8,000	-----	-----	-----	

30-031-XXXX
Big Sky Resort
Big Sky/Gallatin

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	1200	Sierra Anderson	1	≈ 10/84	Good	$4,000	-----	-----	-----	

30-031-0002
E.Main City Bldg.
Bozeman/Gallatin

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
EPA	PM-10	321B	Sierra Anderson	2	≈ 10/84	Good	$8,000	-----	-----	-----	No current need to replace. Mass flow controllers were replaced with volumetric flow controllers between 8/89 and 10/90.

30-031-0008
Belgrade ConAgra
Belgrade/Gallatin

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	1200	Sierra Anderson	2	10/90	Good	$8,000	-----	-----	-----	No current need to replace.

30-043-XXXX
MT City Area
MT City/Jefferson

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
New Equipment	PM-10	321B	Sierra Anderson	1	-----	New	$4,000	-----	-----	-----	

30-049-0001
Cogswell Building
Helena/Lewis & Clark

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
EPA	PM-10	321B	Sierra Anderson	1	≈ 10/84	Good	$4,000	-----	-----	-----	No current need to replace. Mass flow controllers were replaced with volumetric flow controllers between 8/89 and 10/90.

30-049-0018
Lincoln School
Helena/Lewis & Clerk

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
County	PM-10	321B	Sierra Anderson	2	≈ 6/88	Good	$8,000	-----	-----	-----	No current need to replace. Mass flow controllers were replaced with volumetric flow controllers between 8/89 and 10/90.
MT	Flow Calibrator	Dry-Cal	Bios	1	-----	New	$1,450	-----	-----	-----	
MT	PM-10	TEOM 1400	Rupperecht & Patashnick	1	6/93	Good	$17,300	-----	-----	-----	
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	
MT	Shelter	-----	Trailer (13 foot)	1	10/72	Poor	$8,000	-----	-----	-----	
MT	Shelter	-----	EKTO	1	6/95	New	$4,500	-----	-----	-----	

30-049-0714
Firehall
East Helena/Lewis & Clark

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
MT	TSP	-----	General Metal Works	2	≈ 6/75	Fair	$4,000	-----	-----	-----	

30-049-0724
Dartman Field
East Helena/Lewis & Clark

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	TSP	-----	General Metal Works	2	≈ 6/75	Fair	$4,000	-----	-----	-----	

30-049-0726
Old Railroad
East Helena/Lewis & Clark

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	TSP	-----	General Metal Works	2	≈ 6/75	Fair	$4,000	-----	-----	-----	

30-049-XXXX
Lincoln Area
Lincoln/Lewis & Clark

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	321B	Sierra Anderson	1	10/90	Good	$4,000	-----	-----	-----	

30-053-0018
Crthouse Annex
Libby/Lincoln

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	TEOM 1400	Rupprecht Patashnick	1	6/93	Good	$17,300	-----	-----	-----	
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	
MT	Flow Calibrator	DRY-CAL	Bios	1	9/93	Good	$1,450	-----	-----	-----	
MT	PM-10	321B	Sierra Anderson	1	?	Good	$4,000	-----	-----	-----	

30-053-XXXX
Remote Area
NW MT/Lincoln

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	1200	Sierra Anderson	1	3/91	Good	$4,000	-----	-----	-----	

30-061-XXXX
Superior Area
Superior/Mineral

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	321B	Sierra Anderson	1	unk.	Fair	$4,000	-----	-----	-----	

30-063-XXXX
Bonner Area
Bonner/Missoula

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	321B	Sierra Anderson	1	unk.	Fair	$4,000	-----	-----	-----	

30-063-XXXX
Seeley Lake Area
Seeley
Lake/Missoula

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	321B	Sierra Anderson	1	unk.	Fair	$4,000	-----	-----	-----	

30-063-XXXX
Lolo Area
Lolo/Missoula

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	321B	Sierra Anderson	1	unk.	Fair	$4,000	-----	-----	-----	

30-063-XXXX
Frenchtown Area
Frenchtown/
Missoula

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	PM-10	321B	Sierra Anderson	1	unk.	Fair	$4,000	-----	-----	-----	

30-063-0005
Malfunction Jct.
Missoula/Missoula

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	CO	300	API	1	7/95	New	$9,200	-----	-----	-----	New CO analyzer to be installed after 9/1/95.
MT	Data Acquisition System	ICIS-3	WTC	1	6/90	Good	$3,500	-----	-----	-----	
MT	Dilution System	700	API	1	6/95	New	$10,000	-----	-----	-----	New calibrator to be installed after 9/1/95.
County	Shelter	-----	RAPS/RAM shelter	1	≈6/75	Fair	$8,000	-----	-----	-----	No current need to replace. Missoula county has insulated this shelter and it is at a long-term location.
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	

30-063-0024
Boyd Park
Missoula/Missoula

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
County	PM-10	321B	Sierra Anderson	3	≈10/84	Good	$12,000	-----	-----	-----	No current need to replace. Mass flow controllers were replaced with volumetric flow controllers between 8/89 and 10/90.
MT	Flow Calibrator	DC-1	Bios	1	-----	Good	$1,450	-----	-----	-----	
County	Data Acquisition System	ICIS-3	WTC	1	6/90	Good	$3,500	-----	-----	-----	
MT	PM-10	TEOM 1400	Rupprecht & Patashnick	1	-----	New	$17,300	-----	-----	-----	Installed 10/94.
County	Shelter	-----	RAPS/RAM shelter	1	≈6/75	Fair	$8,000	-----	-----	-----	No current need to replace. Missoula county has insulated this shelter and it is at a long-term location.
MT	Recorder	1241	Soltec	1	-----	Good	$1,450	-----	-----	-----	

30-063-0031
Health Dept. Roof
Missoula/Missoula

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
EPA	PM-10	321B	Sierra Anderson	2	≈ 10/84	Good	$8,000	-----	-----	-----	No current need to replace. Mass flow controllers were replaced with volumetric flow controllers between 8/89 and 10/90.

30-081-0001
Courthouse
Hamilton/Ravalli

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
MT	PM-10	321B	Sierra Anderson	1	unk.	Fair	$4,000	-----	-----	-----	

30-081-0002
Hwy 93/State
Hamilton/Ravalli

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
MT	PM-10	321B	Sierra Anderson	2	unk.	Fair	$8,000	-----	-----	-----	

30-087-XXXX
Ashland Area
Ashland/Rosebud

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
New Equipment	PM-10	321B	Sierra Anderson	1	-----	Poor	$4,000	-----	-----	-----	

30-089-0003
Sanders Co.
Courthouse
T. Falls/Sanders

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
EPA	PM-10	321B	Sierra Anderson	3	≈ 10/84	Good	$12,000	-----	-----	-----	No current need to replace. Mass flow controllers were replaced with volumetric flow controllers between 8/89 and 10/90.

30-093-0005
Greeley School
Butte/Silver Bow

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
EPA	PM-10	321B	Sierra Anderson	1	≈ 10/84	Good	$16,000	-----	-----	-----	Three monitors moved to Helena in the summer of 1995.
MT	PM-10	TEOM 1400	Rupprecht & Patashnick	1	6/93	Good	$17,300	-----	-----	-----	
MT	Flow Calibrator	DC-1	Bios	1	-----	Good	$1,450	------	-----	-----	
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	
EPA	Shelter	-----	RAPS/RAM shelter	1	9/92	Good	$8,000	-----	------	-----	No current need to replace. The department reinsulated the shelter on 9/91 and the shelter roof is used as a platform for PM-10's.

30-111-0066
Coburn Road
Bigs/Yellowstone

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
MT	SO_2	100	API	1	3/91	Good	$10,000	-----	-----	-----	No current need to replace.
BLAQTC	Data Acquisition System	ICIS-3	WTC	1	8/89	Good	$3,500	-----	-----	-----	
MT	Met System	Main-frame	Climatronics	1	4/79	Fair	$4,000	-----	-----	-----	
MT	Dilution System	3000	Enviro Electronic Service Inc. (EESI)	1	3/91	Good	$6,100	-----	-----	-----	
EPA	Shelter	-----	RAPS/RAM Shelter	1	~8/75	Fair	$8,000	-----	-----	-----	No current need to replace.
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	

30-111-0081
NorWest
Bigs/Yellowstone

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
County	PM-10	-----	Wedding	1	7/88	Good	$8,000	-----	-----	-----	No current need to replace.
MT	Data Acquisition System	ICIS-3	WTC	1	6/90	Good	$3,500	-----	-----	-----	
MT	CO	3003	Dasibi	1	4/81	Good	$9,200	-----	-----	$9,200	
MT	Dilution System	3000	EESI	1	1/92	Good	$6,100	-----	-----	-----	
MT	Shelter	-----	EKTO	1	9/92	Good	$7,000	-----	-----	-----	No current need to replace.
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	

30-111-0079
Mount Olive
Bigs/Yellowstone

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	CO	3003	Dasibi, Inc.	1	4/81	Good	$9,200	-----	-----	$9,200	This analyzer was upgraded and rebuilt in 1990.
MT	Data Acquisition System	ICIS-3	Western Telecomputing Corporation	1	6/90	Good	$3,500	-----	-----	-----	
MT	Met System	WM-III	Climatronics	1	4/78	Fair	$3,000	-----	-----	-----	
MT	Dilution System	3000	Enviro Electronic Service Inc. (EESI)	1	3/91	Good	$6,000	-----	-----	-----	
MT	Shelter	-----	EKTO	1	9/92	Good	$7,000	-----	-----	-----	
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	

30-111-0080
Sacrifice Cliff
Bigs/Yellowstone

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	********** COMMENTS **********
MT	SO_2	100	API	1	3/91	Good	$10,000	-----	-----	-----	No current need to replace.
MT	Data Acquisition System	ICIS-3	WTC	1	6/92	Good	$3,500	-----	-----	-----	
MT	Met System	WM-III	Climatronics	1	~10/76	Fair	$4,000	-----	-----	-----	
MT	Dilution System	3000	EESI	1	3/91	Good	$6,100	-----	-----	-----	
MT	Shelter	-----	EKTO	1	9/92	Good	$7,000	-----	-----	-----	
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	

30-111-XXXX
Huntley
Blgs/Yellowstone

Ownership	Equipment Type	Model	Manufacturer	# of Units	Acq.Date	Condition	Rep.Cost	Proposed Replacement Costs FY-96	FY-97	FY-98	COMMENTS
MT	O_3	?	?	1	1/96	New	$7,500	$7,500	-----	-----	AQD needs a new O_3 analyzer.
MT	Data Acquisition System	ICIS-3	WTC	1	6/92	Good	$3,500	-----	-----	-----	
MT	Met System	WM-III	Climatronics	1	≈10/76	Fair	$4,000	-----	$4,000	-----	
MT	Dilution System	700	API	1	6/95	New	$11,300	-----	-----	-----	
MT	Shelter	8810	EKTO	1	6/95	New	$9,200	-----	-----	-----	
MT	Recorder	1241	Soltec	1	9/92	Good	$1,450	-----	-----	-----	

TABLE 6

MONTANA NETWORK MODIFICATIONS GOALS FOR FY94 & FY95

Rank	AIRS Number	Site Name/Address City/County	Parm	********** Comments **********
1.	30-063-0024	Boyd Park Missoula/Missoula	PM_{10}	Transfer PM_{10} filter weighings and processing from county lab to state lab starting 7-1-93.
	Status:	Accomplished on 7/93.		
2.	30-063-0031	Health Dept Roof Missoula/Missoula	PM_{10}	Transfer PM_{10} filter weighings and processing from county lab to state lab starting 7-1-93.
	Status:	Accomplished on 7/93.		
3.	30-049-0018	Lincoln School Helena/Lewis & Clark	PM_{10}	Install continuous PM_{10} sampler (TEOM) and begin AIRS data reporting on 10-1-93.
	Status:	TEOM installed and on-line 10/93.		
4.	30-029-1018	E. Maintenance Bldg. Kalispell/Flathead	PM_{10}	Install continuous PM_{10} sampler (TEOM) in a nearby but different buliding at the Courthouse East site. Began AIRS data reporting on 10-1-93.
	Status:	TEOM installed and on-line 10/93.		
5.	30-053-0018	Courthouse Annex Libby/Lincoln	B-scat	Discontinue nephelometer on 9-30-93.
	Status:	Nephelometer discontinued 9/93.		
6.	30-053-0018	Courthouse Annex Libby/Lincoln	PM_{10}	Install a continuous PM_{10} sampler (TEOM) at the courthouse annex site and begin AIRS data reporting on 10-1-93.
	Status:	TEOM installed and on-line 10/93.		

7.	30-093-0005	Butte/Silver Bow Cnty Butte/Silver Bow	PM_{10}	Install a continuous PM_{10} sampler (TEOM) at the Greeley School site and begin AIRS data reporting on 10-1-93.
	Status:	TEOM installed and on-line 10/93.		
8.	30-029-1018	East Maintenance Bldg. Kalispell/Flathead	PM_{10}	Install single high volume PM_{10} sampler next to the TEOM inlet to be used for comparison.
	Status:	Accomplished 10/93.		
9.	30-043-XXXX	Clancy Area Clancy/Jefferson	PM_{10}	Establish a PM_{10} site at the north end of Jefferson County.
	Status:	Site not installed, pending available resources.		
10.	30-049-0719	Hadfield East Helena/Lewis & Clark	TSP/Pb	Discontinue site and move equipment to new site on Prickly Pear Creek.
	Status:	Site discontinued 3/93.		
11.	30-049-XXXX	Prickly Pear Creek East Helena/Lewis & Clark	TSP/Pb	Establish maximum concentration TSP/Pb site at Pacific Street and Prickly Pear Creek. This would become the collocated site.
	Status:	Site installed 11/93.		
12.	30-111-2006	BGI-South Johnson Lane Billings/Yellowstone	SO_2	Establish a monitoring site located by the dispersion modeling done for the BGI permit.
	Status:	Site installed 11/93.		
13.	30-111-2007	BGI-Pine Hills School Billings/Yellowstone	SO_2	Establish a monitoring site located by the dispersion modeling done for the BGI permit.
	Status:	Site installed 11/93.		

14.	30-111-XXXX	BGI-Billings Heights Billings/Yellowstone	SO_2	Relocate the Brickyard Lane SO_2 site to the Billings Heights area in response to public inquiries about SO_2 concentrations in the Heights.
	Status:	Site has not been moved.		
15.	30-029-0041	Patterson Corral Whitefish/Flathead	PM_{10}	Discontinue site with conclusion of the 1993 calender year CMB study.
	Status:	Site discontinued 4/94.		
16.	30-081-0001	Courthouse Hamilton/Ravalli	PM_{10}	Establish site in town in response to citizen concern about high particulate levels.
	Status:	Site installed 6/94.		
17.	30-087-XXXX	Ashland Area Ashland/Rosebud	PM_{10}	Establish a PM_{10} site in Ashland.
	Status:	Site not established, pending available resources.		
18.	30-093-XXXX	Harrison & Int. 90 Butte/Silver Bow	CO	Establish a CO site near the intersection of Harrison and Interstate 90 in Butte in 1994.
	Status:	Site not established, pending available resources and completion of CO saturation study.		
19.	30-029-XXXX	Idaho and Main St. Kalispell/Flathead	CO	Establish a CO site in Kalispell in 1994.
	Status:	Site not established, pending available resources.		
20.	30-081-0002	Highway 93 Hamilton/Ravalli	PM_{10}	Establish hivol PM_{10} site in downtown area near the major north-south arterial (US Highway 93).
	Status:	Site installed 7-31-94.		

21.	30-111-0081	NorWest Billings/Yellowstone	CO	Relocate the Diamond Parking Lot CO site to another nearby location due to cancellation of the site lease.
	Status:	Site moved 4-94.		
22.	30-063-0024	Boyd Park Missoula/Missoula	PM_{10}	Install continuous PM_{10} (TEOM) sampler and begin reporting data to AIRS.
	Status:	Monitor installed fall 1994.		
23.	30-111-0078	Diamond Parking Billings/Yellowstone	PM_{10}	Transfer PM_{10} filter weighing and processing from county lab to state lab.
	Status:	Accomplished on 7-92.		
24.	30-111-0079	Mount Olive Billings/Yellowstone	PM_{10}	Relocate a Diamond Parking Lot PM_{10} sampler to the Mount Olive site.
	Status:	Sampler installed 4-94.		
25.	30-111-0081	NorWest Billings/Yellowstone	PM_{10}	Relocate a Diamond Parking Lot PM_{10} sampler to the NorWest site.
	Status:	Sampler installed 4-94.		
26.	30-029-0043	Evergreen Kalispell/Flathead	PM_{10}	Install a hivol PM_{10} sampler in the rapidly growing area on the northeast edge of Kalispell.
	Status:	Site installed 6-94.		
27.	30-081-0003	Stevensville Ranger Station Stevensville/Ravalli	PM_{10}	Install continuous PM_{10} (TEOM) sampler and hivol PM_{10} sampler in the northern end of the Bitterroot Valley.
	Status:	Site installed 7-94.		

28.	30-081-0004	West Fork Ranger Station Darby/Ravalli	PM_{10}	Install a background PM_{10} site (hivol) in the southern end of the Bitterroot Valley for the USFS.

Status: Site installed 7-94.

29.	30-029-0039	Markus Foods Whitefish/Flathead	PM_{10}	Change sampling frequency from daily and 1-in-2 to 1-in-2 and 1-in-6 for the 1st/4th and 2nd/3rd quarters, respectively.

Status: Frequency change went into effect on 4-94.

30.	30-063-0031	Health Dept. roof Missoula/Missoula	PM_{10}	Change sampling frequency from 1-in-2 and 1-in-6 during the 4th/1st and 2nd/3rd quarters, respectively, to 1-in-6 all year.

Status: Frequency change went into effect on 4-93.

TABLE 7

MONTANA NETWORK MODIFICATIONS GOALS FOR FY96

Rank	AIRS Number	Site Name/Address City/County	Parm	********** Comments **********
1.	30-053-0012	Lincoln Co. Courthouse Libby/Lincoln	PM_{10}	Remove hivol PM_{10} samplers by 8/1.
2.	30-053-0018	Lincoln Co. Annex Libby/Lincoln	PM_{10}	Install hivol PM_{10} on Annex roof as TEOM backup. Designate TEOM as compliance monitor.
3.	30-053-0019	Troy School Troy/Lincoln	PM_{10}	Remove site by 8/1.
4.	30-049-0018	Lincoln School Helena/Lewis & Clark	PM_{10}	Remove one hivol PM_{10} sampler by 9/1, retain one hivol as TEOM backup, designate TEOM as compliance monitor.
5.	30-093-0005	Greeley School Butte/Silver Bow	PM_{10}	Remove three hivol PM_{10} samplers by 9/1, retain one hivol as TEOM backup, designate TEOM as compliance monitor.
6.	30-029-1018	East Maintenance Bldg. Kalispell/Flathead	PM_{10}	Remove hivol & TEOM PM_{10} samplers; move TEOM to Kalispell UA site to replace PM_{10} hivols.
7.	30-029-1015	Universal Athletics Kalispell/Flathead	PM_{10}	Remove two hivol PM_{10} samplers by 9/1, retain one hivol as TEOM backup, move TEOM to UA from East Maintenance Bldg., designate TEOM as compliance monitor.
8.	30-029-0043	Evergreen Kalispell/Flathead	PM_{10}	Add one PM_{10} hivol sampler by 9/1 for increased sampling frequency.
9.	30-063-0024	Boyd Park Missoula/Missoula	PM_{10}	Remove hivol PM_{10} samplers by 7/1/96, retain one hivol as TEOM backup, designate TEOM as compliance monitor.

10.	30-029-0039	Markus Foods Whitefish/Flathead	PM_{10}	Remove hivol PM_{10} samplers by 9/1 except retain one as TEOM backup, install TEOM PM_{10} sampler with modem access, and designate TEOM as compliance monitor.
11.	30-029-XXXX	Central Flathead Valley Kalispell/Flathead	PM_{10}	Install hivol PM_{10} sampler(s) in central Flathead Valley (installation dependant on cooperation with county program).
12.	30-029-XXXX	Idaho and Main St. Kalispell/Flathead	CO	Install continuous CO monitoring site in area(s) identified by the saturation study by 10/1 (installation dependant on cooperation with county program).
13.	30-111-2006	South Johnson Lane Billings/Yellowstone	SO_2	Relocate industry SO_2 site further south on Johnson Lane, to modeled hotspot for that area (conditional upon YELP's cooperation).
14.	30-049-0714	Firehall E. Helena/Lewis & Clark	TSP	Perform additional analyses for heavy metals, Arsenic, Cadmium, Nickel, Chromium, and Zinc, on Firehall "1-in-2" filters. Start analyses 7/1.
15.	30-111-XXXX	East of Billings Worden/Yellowstone	Ozone	Install Ozone monitoring site downwind of Billings, near Huntley or Worden. Seasonal operation: June thru September; start 6/1/96.
16.	30-049-XXXX	Lincoln area Lincoln/Lewis & Clark	PM_{10}	Install hivol PM_{10} sampler(s) by 9/1.
17.	30-027-XXXX	Lewistown area Lewistown/Fergus	PM_{10}	Install hivol PM_{10} sampler(s) by 10/1.
18.	30-029-XXXX	Bigfork area Bigfork/Flathead	PM_{10}	Install hivol PM_{10} sampler(s) by 10/1 (installation dependant on cooperation with county program).

19.	30-063-XXXX	Bonner area Bonner/Missoula	PM_{10}	Install hivol PM_{10} sampler(s) by 11/1 (installation dependant on cooperation with county program).
20.	30-063-XXXX	Seeley Lake area Seeley Lake/Missoula	PM_{10}	Install hivol PM_{10} sampler(s) by 11/1 (installation dependant on cooperation with county program).
21.	30-001-XXXX	Dillon area Dillon/Beaverhead	PM_{10}	Install hivol PM_{10} sampler(s) by 6/1/96.
22.	30-043-XXXX	Montana City School Montana City/Jefferson	PM_{10}	Install hivol PM_{10} sampler(s) by 9/1.
23.	30-111-1065	Lockwood Park Billings/Yellowstone	PM_{10}	Add PM_{10} sampler to Lockwood SO_2 site by 10/1, collect PM_{10} data in area of Billings with relatively high PM_{10} and high SO_2 concentrations (installation dependant on BLAQTC cooperation).
24.	30-031-XXXX	West Yellowstone area West Yellowstone/Gallatin	PM_{10}	Install hivol PM_{10} sampler(s) by 10/1.
25.	30-093-XXXX	Butte Butte/Silver Bow	CO	Two week CO saturation study before Xmas 1995 with miniVOL samplers at several locations in Butte (dependant on cooperation with county program).
26.	30-029-XXXX	Columbia Falls C. Falls/Flathead	PM_{10}	Two week saturation study in spring of 1996 with miniVOL samplers at several locations in Columbia Falls (dependant on cooperation with county program).
27.	30-031-XXXX	Big Sky resort Big Sky/Gallatin	PM_{10}	Install hivol PM_{10} sampler(s) by 6/1/96.
28.	30-053-XXXX	Remote NW Montana Remote area/Lincoln	PM_{10}	Install hivol PM_{10} sampler(s) in remote NW Montana for background site by 6/1/96.

29.	30-007-XXXX	Townsend area Townsend/Broadwater	PM_{10}	Install hivol PM_{10} sampler(s) by 6/1/96.
30.	30-063-XXXX	Frenchtown area Frenchtown/Missoula	PM_{10}	Install hivol PM_{10} sampler(s) by 6/1/96 (installation dependant on cooperation with county program).
31.	30-087-XXXX	Ashland area Ashland/Rosebud	PM_{10}	Install hivol PM_{10} sampler(s) by 6/1/96.
32.	30-063-XXXX	Lolo area Lolo/Missoula	PM_{10}	Install hivol PM_{10} sampler(s) by 6/1/96 (installation dependant on cooperation with county program).
33.	30-061-XXXX	Superior area Superior/Mineral	PM_{10}	Install hivol PM_{10} sampler(s) by 6/1/96.

APPENDIX B: EMISSION INVENTORY DATA FOR 1994

EMISSION INVENTORY DATA FOR 1994

This appendix presents emission inventory data for 1994 from the major point sources throughout Montana. The information is sorted by county. The Department uses point, area and mobile source emission inventory data to assess the adequacy of the air monitoring network and determine if additional sites are needed.

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 001 BEAVERHEAD CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	STOLTZE, F H		2421	142	12	363.7	4999.4	8	90	12.8	32.5	0.0	0.5	2.7
0001	BOX 389													
	DILLON	59725												
00002	BARRETTS MINERALS INC.		3295	142	12	363.2	4998.8	43	94	43.3	6.6	0.4	23.3	0.8
0002	8625 MT HWY 91 SOUTH													
	DILLON	59725												
00004	CENTENNIAL FOODS, INC.		2043	142	12	385.3	5019.0	6	94	0.1	0.0	0.0	0.4	0.0
0004	1575 EAST BENCH ROAD, HWY. 41													
	DILLON	59725												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									56.2	39.1	0.4	24.2	3.5

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 003 BIG HORN CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00002	WESTMORELAND RESOURCES	1211	140	13	338.0	5074.6	18	94	304.3	185.7	14.0	127.9	9.4
0002	EAST OF HARDIN												
	HARDIN 59034												
00003	SPRING CREEK COAL	1211	140	13	351.5	4997.0	17	94	296.7	273.2	18.4	211.3	24.2
0003	SPRING CREEK MINE												
	DECKER 59025												
00004	DECKER COAL COMPANY - WEST	1211	140	13	357.0	4989.0	18	94	620.4	396.3	26.7	243.4	18.4
0004	WEST DECKER MINE												
	DECKER 59025												
00001	DECKER COAL COMPANY - EAST	1211	140	13	359.5	4991.0	18	94	245.9	365.9	24.0	219.3	18.4
0001	EAST DECKER MINE												
	DECKER 590250000												
	NUMBER OF PLANTS > 100 TONS PER YEAR								4	4	0	4	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								1467.3	1221.1	83.1	801.9	70.4

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 005 BLAINE CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	NORTHERN NATURAL GAS - BLAINE COUN	4922	141	12	617.0	5364.0	5	94	2.2	153.6	0.1	1152.0	68.9
0001	T31N, R18E, SEC. 29												
	CHINOOK 59523												
00003	NORTHERN NATURAL GAS - BLAINE COUN	4922	141	12	625.0	5330.0	2	94	0.1	15.4	0.0	8.7	4.3
0003	T27N, R19E, SEC. 7												
	CHINOOK 59523												
00005	MPC - BOWES FIELD, STATION 071	4922	141	12	627.8	5369.5	3	94	0.0	4.4	0.0	13.7	3.5
0005	SE1/4, SEC4, T31N, R19E												
	CHINOOK 59523												
00006	MPC - BIG SANDY FIELD, STATION 103	4922	141	12	626.6	5329.5	2	94	0.0	5.4	0.0	36.3	0.6
0006	SE1/4, SEC8, T27N, R19E												
	LLOYD 59535												
00007	BEAR PAW GATHERING SYSTEMS - BIG S	4922	141	12	622.5	5303.1	3	95	0.0	0.7	0.0	10.6	0.2
0007	SE1/4SE1/4, SEC 35, T25N, R18E												
	CONRAD 59425												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	1	0	1	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								2.3	179.5	0.1	1221.3	77.5

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 007 BROADWATER CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00002	CONTINENTAL LIME		3274	142	12	453.0	5131.0	20	94	126.2	57.6	3.9	235.7	7.4
0002	INDIAN CREEK													
	TOWNSEND	596440000												
00004	NORTHMONT RESOURCES AND EXPLORATIO		1041	142	12	449.2	5114.8	6	94	1.3	0.0	0.0	0.0	0.0
0004	1.5 MILES WEST OF RADERSBURG													
	RADERSBURG	59641												
	NUMBER OF PLANTS > 100 TONS PER YEAR									1	0	0	1	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									127.5	57.6	3.9	235.7	7.4

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 009 CARBON CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	MONTANA LIMESTONE COMPANY		1499	140	12	684.5	4991.7	4	94	15.1	0.0	0.0	0.0	0.0
0001	US 310 WARREN MONTANA													
	BRIDGER	59014												
00002	MPC - DRY CREEK FIELD, STATION 056		4922	140	12	647.0	5013.2	8	94	0.0	18.8	0.0	106.0	24.6
0002	SW1/4, SEC34, T6S, R5E													
	RED LODGE	59068												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	1	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									15.1	18.8	0.0	106.0	24.6

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 013 CASCADE CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00004	MONTANA REFINING		2911	141	12	478.1	5263.0	28	94	16.0	45.0	1088.1	81.0	387.0
0004	1900 10TH STREET													
	GREAT FALLS	59404												
00010	GREAT FALLS CITY ASPHALT PLANT		2951	141	12	478.5	5264.0	4	94	1.2	0.0	0.0	0.0	0.0
0010	N OF CITY SHOP COMPLEX													
	GREAT FALLS	594010000												
00011	UNITED MATERIALS		2951	141	12	467.0	5253.5	16	94	240.7	1.3	2.5	0.0	0.9
0011	2100 9TH AVENUE NO.													
	GREAT FALLS	59401												
00013	CEREAL FOOD PROCESSORS, INC.		2041	141	12	479.0	5262.2	11	94	53.0	0.1	0.0	0.5	0.0
0013	900 16TH STREET NORTH													
	GREAT FALLS	594010000												
00014	MT DEPT TRANSPORTATION ASPHALT BAT		1611	141	12	471.5	5263.0	2	92	3.5	0.0	0.0	0.0	0.0
0014	EMERSON JUNCTION													
	GREAT FALLS	59403												
00015	GTA FEEDS		2082	141	12	483.0	5262.5	6	94	7.2	0.0	0.0	0.0	0.0
0015	NORTHEAST BYPASS													
	GREAT FALLS	59403												
00016	MALMSTROM AFB, BUILDING 82110		9711	141	12	485.7	5263.0	4	94	0.8	11.3	9.7	80.7	0.2
0016	7619 14TH AVENUE NORTHSQUADRON													
	MALMSTOM AFB	594026788												
00007	BIG SKY FEED & SUPPLY		2082	141	12	478.0	5262.0	7	94	0.2	0.0	0.0	0.0	0.0
0007	601 8TH AVENUE, NORTH													
	GREAT FALLS	594030000												
00003	GENERAL MILLS, INC.		2041	141	12	480.3	5262.3	17	94	0.4	0.0	0.0	0.0	0.0
0003	2500 9TH AVENUE NORTH													
	GREAT FALLS	59401												
00012	AGRI BASICS		2082	141	12	479.0	5262.2	8	94	1.4	0.1	0.0	0.7	0.0
0012	921 15TH ST N													
	GREAT FALLS	59401												
00019	COLUMBIA GRAIN INTERNATIONAL INC		4221	141	12	0.0	0.0	4	94	168.9	0.0	0.0	0.0	0.0
0019	1820 12TH AVE N & 800 CRESCENT													
	GREAT FALLS	59404												
00020	GREAT FALLS REDI MIX		2951	141	12	0.0	0.0	7	94	4.4	0.0	9.0	1.0	0.0
0020	1800 VAUGHN ROAD													
	GREAT FALLS	59404												
00021	CASCADE COUNTY ROAD DEPARTMENT		1446	141	12	0.0	0.0	5	94	6.5	0.0	0.0	0.0	0.0
0021	415 3RD STREET N.W.													
	GREAT FALLS	59404												

	PM10	CO	SO2	NO2	VOC
NUMBER OF PLANTS > 100 TONS PER YEAR	2	0	1	0	1
TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)	504.2	57.8	1109.3	163.9	388.1

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STATE: 30 MONTANA COUNTY: 015 CHOUTEAU CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	MPC - BIG SANDY FIELD, STATION 102	4922	141	12	601.9	5324.5	2	94	0.0	4.7	0.0	6.1	0.5
0001	NW1/4, SEC26, T27N, R16E												
	HAVRE 59501												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								0.0	4.7	0.0	6.1	0.5

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STATE: 30 MONTANA COUNTY: 017 CUSTER CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	WILLISTON BASIN - HATHAWAY STATION		4922	143	13	417.4	5129.5	2	94	0.7	2.8	0.0	43.6	0.0
0001	16 MILES WEST OF MILES CITY													
	HATHAWAY	59333												
00002	MDU - MILES CITY		4911	143	13	438.7	5139.5	3	94	0.3	2.9	0.0	10.5	0.3
0002	EAST LEIGHTON BLVD													
	MILES CITY	59301												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									1.0	5.7	0.0	54.1	0.3

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STATE: 30 MONTANA COUNTY: 021 DAWSON CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00003	CENEX - GLENDIVE		5171	143	13	518.3	5216.1	2	94	0.0	0.0	0.0	0.0	27.9
0003	2510 W. TOWNE													
	GLENDIVE	59330												
00002	CENTURY PAVING		2951	143	13	511.2	5216.7	3	94	1.2	0.1	0.2	0.1	0.1
0002	WEST OF GLENDIVE													
	GLENDIVE	59330												
00005	MDU - GLENDIVE		4911	143	13	520.3	5210.8	2	94	0.6	5.1	0.2	18.4	0.6
0005	MARSH ROAD													
	GLENDIVE	59330												
00006	TEXACO PIPELINE INC - RICHEY STATI		4612	143	13	507.5	5271.6	3	94	0.0	0.0	0.0	0.0	6.4
0006	T21N, R53E, SEC10													
	GLENDIVE	59330												
00007	TEXACO PIPELINE INC - GLENDIVE STA		4612	143	13	517.0	5212.9	1	94	0.0	0.0	0.0	0.0	9.1
0007	T15N, R55E, SEC8													
	GLENDIVE	59330												

	PM10	CO	SO2	NO2	VOC
NUMBER OF PLANTS > 100 TONS PER YEAR	0	0	0	0	0
TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)	1.8	5.2	0.4	18.5	44.1

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STATE: 30 MONTANA COUNTY: 025 FALLON CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	WESTERN GAS RESOURCES - BAKER GAS	4922	143	13	571.7	5136.1	3	94	0.2	29.6	0.0	21.3	5.1
0001	SEC. 6, T7N, R60E												
	BAKER 59313												
00002	WILLISTON BASIN - LITTLE BEAVER	4922	143	13	572.3	5105.1	12	94	0.4	315.9	0.0	114.7	45.9
0002	HC 73 BOX 5013												
	BAKER 59313												
00003	WILLISTON BASIN - CABIN CREEK	4922	143	13	544.5	5162.2	16	94	2.9	74.6	0.1	320.4	45.7
0003	HC 72 BOX 6020												
	BAKER 59313												
00004	SWEPI - CABIN CREEK ENGINE	1311	143	13	537.4	5163.4	1	94	0.3	16.9	0.0	134.3	3.2
0004	SEC. 17, T10N, R58E												
	BAKER 59313												
00006	KOCH GATHERING SYSTEMS,INC.	5171	143	0	0.0	0.0	2	94	0.0	0.0	0.0	0.0	3.3
0006	T7N R58E SEC 3												
	BAKER 59313												
00005	SWEPI - CABIN CREEK GCF	1311	143	13	541.0	5163.5	2	94	0.0	0.0	13.8	0.7	36.2
0005	15 MILES NW OF BAKER												
	BAKER 59313												
00008	WILLISTON BASIN - MONARCH STATION	4922	143	13	549.3	5148.6	6	94	0.0	3.9	0.0	2.6	1.3
0008	NE 1/4, SEC. 36, T9N, R58E												
	BAKER 59313												
00009	SHELL WESTERN EPI - PENNEL 30	1311	143	13	555.2	5139.3	1	94	0.1	4.9	0.0	39.1	0.9
0009	NE1/4, SEC. 36, T3N R59E												
	BAKER 59313												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	1	0	3	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								3.9	445.8	13.9	633.1	141.6

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STATE: 30 MONTANA COUNTY: 027 FERGUS CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00004	CENTURY PAVING		2951	140	12	615.6	5212.3	2	94	0.7	0.0	0.1	0.0	0.0
0004	BOX 739													
	LEWISTOWN	59457												
00005	C R KENDALL		1041	140	12	616.5	5237.5	14	94	123.9	186.9	16.6	152.2	8.0
0005	PO BOX 799													
	HILGER	59451												
	NUMBER OF PLANTS > 100 TONS PER YEAR									1	1	0	1	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									124.6	186.9	16.7	152.2	8.0

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STATE: 30 MONTANA COUNTY: 029 FLATHEAD CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00024	A-1 PAVING, INC.		1611	144	0	0.0	0.0	2	94	0.3	2.0	5.2	2.4	1.4
0024	3131 HIGHWAY 2 EAST													
	KALISPELL	59901												
00025	MC ELROY AND WILKEN		1442	144	11	700.5	5343.0	3	94	5.0	0.0	0.0	0.1	0.0
0025	801 WHITEFISH STAGE													
	KALISPELL	59901												
00026	MONTANA PARTNERS IN WOOD		2499	144	11	718.5	5366.9	1	93	0.1	3.2	0.0	0.0	0.3
0026	P.O. BOX 157													
	WEST GLACIER	59936												
00005	PLUM CREEK EVERGREEN		2436	144	11	701.6	5345.3	13	94	83.0	184.0	6.9	128.8	77.1
0005	2 MI NE OF KALISPELL													
	KALISPELL	59903												
00006	KLINGLER LUMBER		2421	144	11	700.5	5342.9	4	94	3.7	0.0	0.0	0.0	0.0
0006	350 FLATHEAD DRIVE													
	KALISPELL	59901												
00008	PLUM CREEK-COLUMBIA FALLS		2436	144	11	708.1	5361.8	35	94	483.2	424.7	15.9	367.8	352.5
0008	500 12TH AVENUE WEST													
	COLUMBIA FALLS	59912												
00010	STOLTZE LAND AND LUMBER COMPANY		2421	144	11	704.1	5362.8	10	94	70.1	30.0	1.1	5.1	10.5
0010	3 MI W OF COLUMBIA FALLS													
	COLUMBIA FALLS	59912												
00016	PACK & COMPANY		2951	144	11	698.4	5345.7	3	94	4.0	0.9	1.8	0.8	0.6
0016	2355 HWY 93N													
	KALISPELL	59901												
00017	FLATHEAD COUNTY ASPHALT PLANT		2951	144	11	705.2	5343.2	3	94	14.1	0.0	1.0	0.2	0.0
0017	5 MILES EAST OF KALISPELL													
	KALISPELL	59901												
00019	STILLWATER FOREST PRODUCTS		2421	144	11	700.3	5343.3	4	94	5.9	0.0	0.0	0.0	0.0
0019	955 WHITEFISH STAGE ROAD													
	KALISPELL	59901												
00003	AMERICAN TIMBER COMPANY		2421	144	11	679.0	5378.5	7	94	84.5	101.4	3.8	17.2	35.4
0003	P.O. BOX 128													
	OLNEY	59927												
00012	COLUMBIA FALLS ALUMINUM		3334	144	11	712.1	5363.8	30	94	319.7	24408.1	1064.7	0.0	328.7
0012	2000 ALUMINUM DRIVE													
	COLUMBIA FALLS	59912												
00027	EQUITY SUPPLY COMPANY		4221		11	699.9	5341.5	4	94	2.2	0.0	0.0	0.0	0.0
0027	P.O. BOX 579													
	KALISPELL	59901												
	NUMBER OF PLANTS > 100 TONS PER YEAR									2	4	1	2	2
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									1075.8	25154.3	1100.4	522.4	806.5

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STATE: 30 MONTANA COUNTY: 031 GALLATIN CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00004	LOUISIANA-PACIFIC - BELGRADE		2421	142	12	485.4	5068.7	12	94	98.2	77.7	1.4	21.6	71.5
0004	400 JACKRABBIT LANE													
	BELGRADE	59714												
00006	LUZENAC AMERICA - THREE FORKS PLAN		1499	142	12	457.3	5081.0	56	94	39.9	3.5	0.2	12.1	0.5
0006	2150 BENCH ROAD													
	THREE FORKS	59752												
00008	MONTANA TALC - LUZENAC/SAPPINGTON		3295	142	12	440.0	5071.5	33	94	36.2	1.3	0.1	4.3	0.3
0008	28769 SAPPINGTON RD													
	THREE FORKS	597520000												
00005	HOLNAM, INC.		3241	142	12	464.4	5088.0	53	94	191.3	73.1	31.7	1330.6	1.8
0005	4070 TRIDENT RD													
	THREE FORKS	59752												
00001	PIONEER READY MIX		2951	142	12	487.7	5067.1	3	94	4.4	2.0	4.0	1.9	1.5
0001	21730 HIWAY 10; NW OF BOZEMAN													
	BOZEMAN	59714												
00007	KANTA PRODUCTS		3255	142	12	456.0	5080.2	5	94	4.4	0.0	0.0	0.0	0.0
0007	WILLOW CREEK ROAD													
	THREE FORKS	59752												
00009	EXXON - BOZEMAN MARKETING TERMINAL		5171	142	12	497.1	5060.4	3	94	0.0	0.0	0.0	0.0	87.5
0009	220 W. GRIFFIN DRIVE													
	BOZEMAN	59715												
00010	MSU - CENTRAL HEATING PLANT		8221	142	12	496.5	5056.5	3	94	0.4	5.2	0.0	21.0	0.4
0010	OFFICE OF FACILITY SERVICES													
	BOZEMAN	59717												
	NUMBER OF PLANTS > 100 TONS PER YEAR									1	0	0	1	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									374.8	162.8	37.4	1391.5	163.5

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STATE: 30 MONTANA COUNTY: 035 GLACIER CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00004	MPC CUT BANK MAINLINE #1 STATION	1321	141	12	408.3	5383.8	10	94	1.3	75.5	0.0	36.0	14.0
0004	4 MILES SE OF CUT BANK												
	CUT BANK 59427												
00009	MPC - COBB STORAGE FIELD, STATION	4922	141	12	408.8	5405.5	9	94	0.6	0.6	0.0	2.1	0.3
0009	NW1/4, SEC 15, T35N, R5W												
	CUT BANK 59427												
00010	MPC - CUT BANK FIELD, STATION 001	4922	141	12	409.4	5387.6	2	94	0.0	13.5	0.0	9.1	4.5
0010	NW1/4, SEC 11, T33N, R5W												
	CUT BANK 59427												
00006	MPC - CUT BANK FIELD, STATION 015	4922	141	12	406.2	5398.5	2	94	0.0	3.9	0.0	21.7	14.8
0006	NW1/4, SEC4, T34N, R5W												
	CUT BANK 59427												
00008	MPC - CUT BANK FIELD, STATION 025	4922	141	12	411.9	5412.1	2	94	0.0	5.0	0.0	69.9	1.3
0008	SE1/4, SEC24, T36N, R5W												
	CUT BANK 59427												
00011	MPC - CUT BANK, STATION 018	4922	141	12	420.0	5345.8	2	94	0.0	1.6	0.0	17.4	15.2
0011	NW1/4, SEC22, T35N, R5W												
	CUT BANK 59427												
00007	MPC - CUT BANK FIELD, STATION 002	4922	141	12	407.5	5408.9	3	94	0.0	15.1	0.0	9.4	11.0
0007	SE1/4, SEC33, T36N, R5W												
	CUT BANK 59427												
00005	CONOCO INC - CUT BANK CRUDE OIL PI	4612	141	12	404.0	5385.8	1	94	0.0	0.0	0.0	0.0	17.9
0005	1252 TANK FARM HILL												
	CUT BANK 59427												
00012	GYPSY HIGHVIEW-RED RIVER STATION	1311	141	12	411.9	5421.1	3	94	0.0	2.1	0.0	1.5	1.7
0012	18.5 MILES NORTH OF CUT BANK												
	CUT BANK 59427												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								1.9	117.3	0.0	167.1	80.7

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STATE: 30 MONTANA COUNTY: 037 GOLDEN VALLEY CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	MPC - BIG COULEE FIELD, STATION 05	4922	140	12	632.8	5111.7	4	94	0.0	1.0	0.0	10.8	0.4
0001	SE1/4, SEC25, T19E, R5N												
	RYEGATE 59074												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								0.0	1.0	0.0	10.8	0.4

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STATE: 30 MONTANA COUNTY: 041 HILL CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00002	NORTHERN NATURAL GAS COMPANY - HIL	4922	141	12	596.0	5366.0	2	94	0.0	11.0	0.0	184.8	6.1
0002	T31N, R16E, SEC 18												
	CHINOOK 59523												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	1	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								0.0	11.0	0.0	184.8	6.1

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STATE: 30 MONTANA COUNTY: 043 JEFFERSON CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00003	MONTANA TUNNELS MINE		1041	142	12	412.5	5135.5	17	94	427.4	277.9	55.3	564.3	34.5
0003	PO BOX 176													
	JEFFERSON CITY	59638												
00001	ASH GROVE CEMENT		3241	142	12	429.0	5154.5	22	94	151.0	10.2	75.7	410.7	1.6
0001	100 HIGHWAY 518													
	CLANCY	596349701												
00002	GOLDEN SUNLIGHT MINE		1041	142	12	421.6	5083.0	19	94	357.2	418.3	36.3	356.7	25.7
0002	453 HWY 2 EAST													
	WHITEHALL	597590000												
	NUMBER OF PLANTS > 100 TONS PER YEAR									3	2	0	3	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									935.6	706.4	167.3	1331.7	61.8

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STATE: 30 MONTANA COUNTY: 049 LEWIS AND CLARK CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	ASARCO INCORPORATED		3332	142	12	429.5	5158.8	34	94	110.0	4.6	14768.0	18.5	0.3
0001	100 SMELTER ROAD													
	EAST HELENA	59635												
00003	AMERICAN CHEMET		2819	142	12	429.0	5160.0	19	94	2.9	0.6	0.0	3.4	0.1
0003	SMELTER ROAD													
	EAST HELENA	59635												
00005	HELENA SAND & GRAVEL		2951	142	12	427.1	5162.7	4	94	1.5	4.6	2.8	18.1	1.8
0005	P.O. BOX 5960													
	HELENA	59604												
00006	BASIN CREEK MINE		1041	142	12	401.0	5141.5	16	94	11.6	41.7	2.7	32.2	3.2
0006	20 MILES SW OF HELENA													
	BASIN	59631												
00007	U.S. DEPARTMENT OF VETERANS AFFAIR		4953	142	12	415.7	5163.2	1	94	0.0	0.2	0.0	0.0	0.0
0007	VA CENTER													
	FORT HARRISON	59636												
00010	EXXON - HELENA MARKETING TERMINAL		5171	142	12	424.8	5160.1	3	94	0.0	0.0	0.0	0.0	54.6
0010	3120 HIGHWAY 12 EAST													
	HELENA	59601												
	NUMBER OF PLANTS > 100 TONS PER YEAR									1	0	1	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									126.0	51.7	14773.5	72.2	60.0

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STATE: 30 MONTANA COUNTY: 051 LIBERTY CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	MPC - EAST KEITH FIELD, STATION 03	4922	141	12	505.3	5412.3	3	94	0.0	2.8	0.0	13.7	2.3
0001	SE1/4 NE1/4 SEC. 22 T36N R6E												
	SHELBY 59474												
00002	MPC - UTOPIA FIELD, STATION 035	4922	141	12	486.5	5384.3	3	94	0.0	2.4	0.0	20.3	0.3
0002	SW1/4, SEC14, T33N, R4E												
	LOTHAIR 59461												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								0.0	5.2	0.0	34.0	2.6

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STATE: 30 MONTANA COUNTY: 053 LINCOLN CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	OWENS & HURST		2421	144	11	642.3	5419.7	5	94	37.0	0.0	0.0	0.0	0.0
0001	NORTH ON HIWAY 93													
	EUREKA	59917												
00002	PLUM CREEK MFG., LP-KSANKA		2421	144	11	655.3	5402.7	6	94	47.2	36.8	1.3	6.2	12.8
0002	PO BOX 28, HIWAY 93 N.													
	FORTINE	59918												
00003	ASARCO - TROY		1021	144	11	581.5	5345.6	5	94	6.8	1.5	0.4	3.6	0.2
0003	P.O. BOX 868													
	TROY	59935												
00004	STIMSON LUMBER - LIBBY		2436	144	11	607.8	5359.7	9	94	171.9	871.3	18.7	252.9	144.8
0004	875 HIGHWAY 2 SOUTH													
	LIBBY	59923												
00010	EUREKA PELLET MILLS		2421	144	11	642.0	5419.2	3	94	62.7	2.9	0.1	0.4	1.0
0010	P.O. BOX 667													
	EUREKA	59917												
00013	DIVERSIFIED HOUSE LOGS, INC		2421	144	11	582.9	5396.8	1	93	3.8	130.0	0.1	1.0	11.0
0013	11677 YAAK RIVER ROAD													
	TROY	59935												
	NUMBER OF PLANTS > 100 TONS PER YEAR									1	2	0	1	1
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									329.4	1042.5	20.6	264.1	169.8

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STATE: 30 MONTANA COUNTY: 055 MC CONE CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	WILLISTON BASIN - VIDA STATION	4922	143	13	473.0	5304.7	6	94	0.5	21.9	0.0	100.3	15.3
0001	N1/2 NE1/4 SEC 27 T25N R49E												
	VIDA 59330												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	1	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								0.5	21.9	0.0	100.3	15.3

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STATE: 30 MONTANA COUNTY: 057 MADISON CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00005	LUZENAC AMERICA INC. - ANTLER MINE	1499	142	12	359.0	5050.0	8	94	30.8	2.1	0.5	5.4	0.2
0005	SOUTH OF SILVER STAR												
	ALDER 59710												
00006	LUZENAC AMERICA INC. - ALDER PLANT	1499	142	12	410.0	5010.0	2	92	0.3	0.0	0.0	0.0	0.0
0006	ALDER PLANT												
	ALDER 59710												
00007	LUZENAC AMERICA INC. - BEAVERHEAD	1499	142	12	0.0	0.0	2	94	0.8	6.4	0.1	1.4	0.2
0007	BEAVERHEAD MINE												
	ALDER 59710												
00001	LUZENAC AMERICA - YELLOWSTONE MINE	3295	142	12	442.9	4991.4	11	94	39.7	34.1	3.8	34.8	2.7
0001	22 MILES SOUTH OF ENNIS												
	CAMERON 59720												
00002	LUZENAC AMERICA - JOHNNY GULCH MIN	1496	142	12	442.5	4991.5	13	94	34.0	24.4	2.5	23.3	1.9
0002	4 MILES SOUTH CAMERON												
	ENNIS 59729												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								105.6	67.0	6.9	64.9	5.0

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STATE: 30 MONTANA COUNTY: 059 MEAGHER CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	ALCOTECH INDUSTRIES	2869	142	12	515.1	5124.1	2	94	12.3	7.5	0.3	2.7	6.6
0001	1/4 MILE NORTH OF RINGLING												
	RINGLING 59642												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								12.3	7.5	0.3	2.7	6.6

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STATE: 30 MONTANA COUNTY: 061 MINERAL CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00003	NORTHWEST LUMBER AND CEDAR		2421	144	11	644.5	5241.0	2	91	7.3	0.0	0.1	1.9	20.9
0003	P.O. BOX 417													
	ST. REGIS	59866												
00004	TRICON TIMBER INC.		2421	144	11	644.8	5241.4	3	94	13.0	25.2	0.9	17.6	8.8
0004	1 MILE NORTHEAST OF ST. REGIS													
	ST. REGIS	59866												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									20.3	25.2	1.0	19.5	29.7

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STATE: 30 MONTANA COUNTY: 063 MISSOULA CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00004	PYRAMID MTN LUMBER		2421	144	12	312.0	5226.7	8	94	56.8	50.7	1.9	35.5	17.7
0004	SOUTH EDGE OF TOWN													
	SEELEY LAKE	59868												
00006	STONE CONTAINER		2631	144	11	713.1	5204.6	44	94	597.0	4033.7	171.5	2182.7	965.5
0006	MULLEN ROAD													
	MISSOULA	598014707												
00008	MISSOULA WHITE PINE		2431	144	11	728.2	5196.7	18	94	21.7	27.2	408.7	58.1	5.8
0008	1301 SCOTT ST.													
	MISSOULA	598017009												
00009	AMERICAN ASPHALT		2951	144	11	724.9	5198.7	2	93	4.1	0.2	0.4	0.2	0.1
0009	MULLAN ROAD AT FLYNN LANE													
	MISSOULA	59802												
00002	LOUISIANA-PACIFIC		2493	144	11	726.4	5198.6	29	94	133.9	60.6	2.2	19.3	20.5
0002	3300 RASER DRIVE													
	MISSOULA	59802												
00012	JENSEN PAVING - FLYNN LANE		1611	144	11	725.9	5198.9	2	94	15.7	0.4	0.9	0.4	0.3
0012	4525 MULLAN ROAD													
	MISSOULA	59801												
00001	STIMPSON LUMBER - MISSOULA		2421	144	12	281.5	5194.8	4	94	247.9	435.6	16.3	305.6	152.4
0001	HIGHWAY 200 EAST													
	BONNER	59823												
00007	JTL GROUP - TARGET RANGE		2951	144	11	722.9	5191.9	3	94	16.7	0.0	0.0	0.0	0.0
0007	3800 40TH AVENUE													
	MISSOULA	59801												
00013	JTL GROUP - WESTVIEW		1611	144	11	724.9	5198.7	5	94	18.6	0.9	1.8	0.9	0.7
0013	2700 MICHAEL ROAD													
	MISSOULA	59802												
00014	MISSOULA READY MIX		3273	144	0	0.0	0.0	3	94	0.7	0.0	0.0	0.0	0.0
0014	1600 RIVER ROAD													
	MISSOULA	59801												
00017	EXXON COMPANY USA		5171	144	11	726.2	5198.0	3	94	0.0	0.0	0.0	0.0	101.8
0017	3350 RASER DRIVE													
	MISSOULA	59801												
	NUMBER OF PLANTS > 100 TONS PER YEAR									3	2	2	2	3
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									1113.1	4609.3	603.7	2602.7	1264.8

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STATE: 30 MONTANA COUNTY: 067 PARK CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	BRAND S LUMBER	2421	142	12	534.0	5053.0	7	94	12.3	2.5	0.7	11.8	0.8
0001	1 MI. SE OF I90 & US89 INTRCHG												
	LIVINGSTON 590470000												
00002	PARK COUNTY INCINERATOR	4953	142	12	535.4	5058.6	1	94	9.7	23.7	11.8	30.6	10.4
0002	328 NORTH M STREET												
	LIVINGSTON 59047												
00003	PARK LUMBER COMPANY, INC.	2421	142	12	536.0	5058.0	3	94	1.6	3.2	0.0	0.0	0.2
0003	1.5 MILES EAST OF LIVINGSTON												
	LIVINGSTON 59047												
00004	TVX - MINERAL HILL MINE	1041	142	12	530.0	4990.5	12	94	12.5	21.0	2.8	26.1	2.2
0004	SEC. 9, TOWNSHIP 9E, RANGE 9S												
	GARDINER 59030												
00007	EGGAR, INC.	1442	142	12	505.0	5050.5	3	94	6.0	0.0	0.0	0.0	0.0
0007	T1S, R10E, SEC. 35												
	LIVINGSTON 59047												
00008	MPC - LIVINGSTON STATION 1&2	4922	142	12	527.1	5055.7	2	94	0.0	17.0	0.0	5.2	5.6
0008	NEQ NEQ S19+20 T2S R9E												
	LIVINGSTON 59047												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								42.1	67.4	15.3	73.7	19.2

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STATE: 30 MONTANA COUNTY: 071 PHILLIPS CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00002	ZORTMAN MINING, INC. (LANDUSKY)	1041	143	12	678.5	5310.0	13	94	814.1	528.4	59.5	543.2	26.5
0002	PO BOX 313												
	ZORTMAN 59546												
00001	ZORTMAN MINING, INC. (ZORTMAN)	1041	143	12	683.1	5311.3	13	94	25.0	4.4	0.0	1.9	0.2
0001	P.O. BOX 313												
	ZORTMAN 595460000												
	NUMBER OF PLANTS > 100 TONS PER YEAR								1	1	0	1	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								839.1	532.8	59.5	545.1	26.7

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STATE: 30 MONTANA COUNTY: 073 PONDERA CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	BUSCH AGRICULTURAL RESOURCES, INC.	5153	141	12	429.0	5334.0	5	94	19.5	0.0	0.0	0.0	0.0
0001	HIGHWAY 91 AND FRONT STREET												
	CONRAD 59425												
00003	MPC - WILLIAMS FIELD, STATION 041	4922	141	12	408.3	5403.2	2	94	0.0	1.7	0.0	12.1	12.1
0003	NE1/4, SEC2, T29N, R4W												
	SHELBY 59474												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								19.5	1.7	0.0	12.1	12.1

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STATE: 30 MONTANA COUNTY: 077 POWELL CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	COMINCO FERTILIZERS		1475	142	12	361.7	5165.3	14	94	0.1	0.1	0.0	0.4	0.0
0001	P.O. BOX 638													
	GARRISON	59731												
00002	LOUISIANA-PACIFIC CORP.		2421	142	12	366.0	5138.5	9	94	48.8	327.2	2.5	17.0	39.5
0002	KENTUCKY AVENUE													
	DEER LODGE	59722												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	1	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									48.9	327.3	2.5	17.4	39.5

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STATE: 30 MONTANA COUNTY: 081 RAVALLI CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	DARBY LUMBER INC.		2421	144	11	720.3	5095.7	9	94	39.4	15.5	0.5	2.6	5.4
0001	4114 HWY. 93													
	DARBY	59829												
00003	MASSA READY MIX		1771	144	0	0.0	0.0	2	94	2.0	0.0	0.0	0.0	0.0
0003	SE1/4,NE1/4,SEC6,T6N,R20W													
	HAMILTON	59840												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									41.4	15.5	0.5	2.6	5.4

STATE: 30 MONTANA COUNTY: 083 RICHLAND CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00008	KOCH-N. YELLOWSTONE STATION		4922	143	13	556.0	5290.0	2	94	1.0	26.8	0.0	28.9	17.2
0008	SECTION 12, T59N, R23E													
	SIDNEY	59270												
00003	MDU - LEWIS & CLARK STATION		4911	143	13	563.4	5280.7	1	94	32.8	76.6	929.5	1020.9	8.9
0003	114 N CENTRAL AVE													
	SIDNEY	59270												
00002	HOLLY SUGAR CORPORATION		2063	143	13	564.9	5285.0	16	94	148.0	187.4	107.3	286.3	23.2
0002	P.O. BOX 1168													
	SIDNEY	59270												
00005	KNIFE RIVER COAL		1211	143	13	543.0	5257.5	11	94	84.2	27.2	1.4	13.2	1.6
0005	NEAR SAVAGE													
	SAVAGE	59262												
00010	COASTAL HENDERSON #4-22 WELL		4612	143	13	563.4	5292.6	3	94	0.0	0.0	0.0	0.0	0.7
0010	SEQ, NWQ, S4, T23N, R59E													
	SIDNEY	59270												
00012	TEXACO PIPELINE INC - SIDNEY STATI		4612	143	13	568.5	5181.3	1	94	0.0	0.0	0.0	0.0	3.5
0012	T22N, R59E, SEC12													
	SIDNEY	59270												
00011	TEXACO PIPELINE INC - PUTNAM STATI		4612	143	13	551.9	5291.4	1	94	0.0	0.0	0.0	0.0	7.6
0011	T23N, R57E, SEC13													
	SIDNEY	59270												

	PM10	CO	SO2	NO2	VOC
NUMBER OF PLANTS > 100 TONS PER YEAR	1	1	2	2	0
TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)	266.0	318.0	1038.2	1349.3	62.7

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STATE: 30 MONTANA COUNTY: 085 ROOSEVELT CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00003	KOCH - BAINVILLE COMPRESSOR STATIO		4922	143	13	545.0	5332.0	2	94	2.1	56.2	0.1	60.6	36.1
0003	SECTION 20, T28N, R58E													
	BAINVILLE	59212												
00004	TEXACO PIPELINE INC - POPLAR STATI		4612	143	13	500.5	5345.0	1	94	0.0	0.0	0.0	0.0	49.5
0004	SEC30, T29N, R51E													
	BROCKTON	59213												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									2.1	56.2	0.1	60.6	85.6

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STATE: 30 MONTANA COUNTY: 087 ROSEBUD CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00009	BIG SKY COAL COMPANY		1211	143	13	376.0	5075.0	17	94	388.5	215.8	17.8	163.1	12.5
0009	P.O. BOX 97													
	COLSTRIP	59323												
00011	ST. LABRE INDIAN SCHOOL		9999	143	13	400.2	5051.0	2	94	48.3	29.7	1.1	5.0	10.4
0011	P.O. BOX 48													
	ASHLAND	59003												
00004	WESTERN ENERGY		1211	143	13	375.0	5081.0	40	94	1046.4	780.1	75.3	467.0	35.9
0004	ROSEBUD MINE													
	COLSTRIP	59323												
00010	NORTHERN CHEYENNE PINE CO		2421	143	12	400.5	5049.9	12	94	92.6	33.6	1.2	5.7	11.7
0010	HIGHWAY 212 WEST													
	ASHLAND	59003												
00007	COLSTRIP ENERGY LTD. PARTNERSHIP		4911	143	13	371.5	5092.6	2	94	14.0	1.7	1120.0	633.4	9.1
0007	ROSEBUD PLANT													
	COLSTRIP	59323												
00008	MPC - COLSTRIP UNITS #1 & #2		4911	143	13	374.3	5082.2	3	94	60.0	674.5	8121.0	8648.0	94.4
0008	P.O. BOX 38													
	COLSTRIP	59323												
00012	AGRI SYSTEMS		2421	143	12	400.5	5049.8	3	93	7.2	2.2	0.0	0.3	0.7
0012	HIGHWAY 212													
	ASHLAND	59003												
00014	MPC - COLSTRIP UNITS #3 & #4		4911	143	13	374.3	5082.2	2	94	163.0	1714.0	4707.0	21241.0	240.0
0014	P.O. BOX 38													
	COLSTRIP	59323												
	NUMBER OF PLANTS > 100 TONS PER YEAR									3	4	3	5	1
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									1820.0	3451.6	14043.4	31163.5	414.7

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 089 SANDERS CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00003	THOMPSON RIVER LUMBER		2421	144	11	631.3	5270.8	7	94	18.3	3.0	0.1	0.5	1.0
0003	P.O. BOX 279													
	THOMPSON FALLS	598730000												
00004	CROWN PACIFIC INLAND LUMBER, L.P.		2421	144	11	626.2	5271.7	14	94	49.8	55.3	2.0	9.4	19.3
0004	1/2 MILE SE OF THOMPSON FALLS													
	THOMPSON FALLS	59873												
00005	WATTERS LUMBER COMPANY		2421	144	11	621.4	5274.3	4	94	0.1	0.7	0.0	0.0	0.0
0005	P.O. BOX 666													
	THOMPSON FALLS	59873												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									68.2	59.0	2.1	9.9	20.3

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STATE: 30 MONTANA COUNTY: 091 SHERIDAN CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	KOCH - CLEAR LAKE STATION	4922	143	13	551.0	5358.1	1	94	0.4	11.9	0.0	12.9	7.7
0001	SECTION 17, T33N, R58E												
	DAGMAR 59219												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								0.4	11.9	0.0	12.9	7.7

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STATE: 30 MONTANA COUNTY: 093 SILVER BOW CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00006	RITEWAY ASPHALT		2951	142	12	379.9	5093.8	1	92	0.2	0.0	0.0	0.0	0.0
0006	700 CENTENNIAL AVE.													
	BUTTE	59701												
00007	BUTTE-SILVER BOW ASPHALT	PLANT	2951	142	12	379.9	5093.8	3	94	3.6	0.5	1.0	0.5	0.4
0007	500 CENTENNIAL AVENUE													
	BUTTE	59701												
00008	GILMAN EXCAVATING		2951	142	12	385.3	5096.3	2	94	0.5	0.0	0.0	0.0	0.0
0008	1488 CONTINENTAL													
	BUTTE	59701												
00011	BEAL MOUNTAIN MINE		1041	142	12	354.5	5091.5	19	94	58.0	114.4	11.6	107.8	9.7
0011	1800 FAIRMONT ROAD													
	ANACONDA	597110000												
00005	RHONE-POULENC BASIC CHEMICALS CO.		2819	142	12	370.2	5094.5	28	94	139.6	54.5	462.1	336.6	3.3
0005	NEAR RAMSAY													
	SILVER BOW	59750												
00009	MONTANA RESOURCES		1021	142	12	383.2	5096.6	21	94	1110.3	366.4	43.8	405.7	42.2
0009	600 SHIELDS AVENUE													
	BUTTE	59701												
00013	MSE - WETO SITE		8733	142	12	382.3	5087.1	6	94	0.0	0.0	0.0	0.6	0.0
0013	BUTTE INDUSTRIAL PARK													
	BUTTE	59702												
00012	BLANKENSHIP CONSTRUCTION		1611	142	12	381.0	5098.0	2	94	1.5	0.0	0.1	0.0	0.0
0012	P.O. BOX 460													
	BUTTE	59703												
	NUMBER OF PLANTS > 100 TONS PER YEAR									2	2	1	3	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									1313.7	535.8	518.6	851.2	55.6

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STATE: 30 MONTANA COUNTY: 095 STILLWATER CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00002	STILLWATER MINING CO. SMELTER		3339	140	12	637.5	5054.8	1	94	0.0	0.0	4.7	0.3	0.0
0002	P.O. BOX 1209													
	COLUMBUS	59019												
00001	STILLWATER MINING COMPANY		1099	140	12	588.0	5026.0	11	94	42.4	57.7	6.5	74.7	6.1
0001	STAR ROUTE 2, BOX 365													
	NYE	59061												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									42.4	57.7	11.2	75.0	6.1

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STATE: 30 MONTANA COUNTY: 099 TETON CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00002	BUSCH AGRICULTURAL - FAIRFIELD ELE	5153	141	12	426.1	5273.5	3	94	24.0	0.0	0.0	0.0	0.0
0002	233 WEST MAIN P.O. BOX 697												
	FAIRFIELD 59436												
00003	BUSCH AGRICULTURAL - FAIRFIELD SEE	5153	141	12	425.0	5274.0	6	94	1.0	0.0	0.0	0.0	0.0
0003	NE1/4 NE1/4 SEC. 33 T22N R3W												
	FAIRFIELD 59436												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								25.0	0.0	0.0	0.0	0.0

STATE: 30 MONTANA COUNTY: 101 TOOLE CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00005	BEARPAW GATHERING SYSTEMS, INC.		4922	141	12	441.8	5390.5	3	94	0.1	4.3	0.0	6.4	0.8
0005	8 MILES EAST OF KEVIN													
	KEVIN	59454												
00004	MPC - SHELBY-KEVIN SUNBURST STATIO		4922	141	12	446.0	5382.5	2	94	0.0	4.5	0.0	19.1	12.5
0004	8 MILES NE OF SHELBY													
	SHELBY	59474												
00010	MPC - NORTH MOULTON FIELD, STATION		4922	141	12	416.0	5424.7	6	94	0.0	21.5	0.0	57.7	7.9
0010	SE1/4, SEC8, T37N, R4W													
	CUT BANK	59427												
00007	SHELBY GATHERING PARTNERS		4922	141	12	439.1	5379.8	2	94	0.1	2.6	0.0	19.9	1.1
0007	SE1/4, SEC35, T33N, R2W													
	SHELBY	59474												
00008	MPC - TELSTAD FIELD, STATION 033		4922	141	12	457.2	5371.0	11	94	0.0	20.3	16.0	126.0	36.9
0008	NE1/4, SEC34, T32N, R1E													
	SHELBY	59474												
00009	MPC - SOUTH MOULTON FIELD, STATION		4922	141	12	416.0	5422.5	3	94	0.0	0.2	0.0	1.8	0.0
0009	NE1/4, SEC20, T37N, R4W													
	CUT BANK	59427												
00011	BASIN EXPLORATION,INC. - PRAIRIE D		4922	141	12	442.2	5390.6	2	94	0.0	25.7	0.0	25.9	5.1
0011	SE1/4, S30, T34N, R1W													
	OILMONT	59466												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	1	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									0.2	79.1	16.0	256.8	64.3

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 105 VALLEY CO

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	WILLISTON BASIN - FORT PECK STATIO	4922	143	13	393.2	5323.9	6	94	0.4	61.7	0.0	154.3	24.7
0001	23 MDU ROAD												
	NASHUA 592489802												
00002	WILLISTON BASIN - SACO	4922	143	13	333.6	5367.8	11	95	1.0	154.2	0.0	363.6	90.3
0002	SACO COMPRESSOR STATION												
	SACO 59261												
	NUMBER OF PLANTS > 100 TONS PER YEAR								0	1	0	2	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)								1.4	215.9	0.0	517.9	115.0

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 107 WHEATLAND CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	J.D. LUMBER		2421	140	12	595.5	5168.0	5	94	21.1	0.0	0.0	0.0	0.0
0001	P.O. BOX 206													
	JUDITH GAP	59453												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									21.1	0.0	0.0	0.0	0.0

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 109 WIBAUX CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00001	SWEPI - S. PINE GCF		1311	143	13	535.4	5174.3	2	94	0.0	0.0	32.5	0.5	33.0
0001	SEC. 10, T11N, R57E													
	BAKER	593131324												
00002	SWEPI - S. PINE ENGINE		1311	143	13	536.6	5170.9	1	94	0.4	36.9	3.0	10.7	3.5
0002	SEC. 23, T11N, R57E													
	BAKER	59313												
	NUMBER OF PLANTS > 100 TONS PER YEAR									0	0	0	0	0
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									0.4	36.9	35.5	11.2	36.5

DATE : 07/12/95 AFS COUNTY POINT SOURCE SUMMARY PGM: AFP649

STATE: 30 MONTANA COUNTY: 111 YELLOWSTONE CO

PLANT	NAME AND ADDRESS		SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
00018	SCHESSLER READY MIX		3273	140	12	673.1	5059.3	1	94	0.8	0.0	0.0	0.0	0.0
0018	603 RAILROAD STREET													
	LAUREL	59044												
00002	JTL GROUP, INC.		2951	140	12	686.0	5069.0	2	94	1.7	0.0	0.0	0.0	0.0
0002	SHILO RD & KING AVE WEST													
	BILLINGS	59107												
00007	WESTERN SUGAR		2063	140	12	694.6	5070.2	13	94	49.8	234.9	470.0	331.3	16.5
0007	3020 STATE AVE													
	BILLINGS	59101												
00010	EMPIRE SAND & GRAVEL COMPANY		1611	140	12	701.0	5081.5	2	94	1.9	0.0	1.9	0.2	0.0
0010	PIONEER ROAD, 5 MILES NE BLGS													
	BILLINGS	59103												
00011	CONOCO		2911	140	12	695.0	5072.7	35	94	138.7	143.2	1738.4	658.4	1861.8
0011	401 S 23RD ST													
	BILLINGS	59103												
00012	CENEX		2911	140	12	674.0	5058.0	51	94	187.6	155.3	3561.9	981.0	1171.5
0012	US 212, SOUTH OF LAUREL													
	LAUREL	59044												
00013	EXXON CO USA		2911	140	12	699.5	5076.5	19	94	321.7	96.3	10430.6	1679.7	1685.1
0013	700 EXXON ROAD													
	BILLINGS	591031163												
00014	MONTANA SULFUR & CHEMICAL		2819	140	12	700.0	5076.0	6	94	1.1	267.2	3188.9	10.7	0.2
0014	EAST FRONTAGE ROAD													
	BILLINGS	59103												
00015	MPC - CORETTE/BIRD POWER PLANTS		4911	140	12	695.9	5071.9	3	94	183.6	221.0	6733.0	3225.0	24.9
0015	PO BOX 30495													
	BILLINGS	59107												
00006	CEREAL FOOD PROCESSORS, INC.		2041	140	12	693.3	5071.8	7	94	13.4	0.0	0.0	0.2	0.0
0006	3601 FIRST AVE. SOUTH													
	BILLINGS	59101												
00024	EXXON BULK TERMINAL		5171	140	12	700.0	5076.0	3	94	0.0	0.0	0.0	0.0	144.0
0024	607 EXXON ROAD													
	BILLINGS	59101												
	NUMBER OF PLANTS > 100 TONS PER YEAR									4	5	6	5	4
	TOTAL COUNTY POINT SOURCE EMISSIONS (TONS/YR)									900.3	1117.9	26124.7	6886.5	4904.0

STATE: 30 MONTANA COUNTY: 777 PORTABLE SOURCE

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
02732	PACIFIC PAVEMENT RECYCLING	2951	142	0	0.0	0.0	5	94	0.0	0.3	0.4	0.0	0.0
2732	92 PYRO-PAVER 300E APH RCYCLER												
	PORTABLE 981880785												
02735	BLAHNIK CONSTRUCTION, INC.	2951	142	0	0.0	0.0	3	94	7.9	12.5	3.8	57.6	3.9
2735	92 ASPH DRUM B834-P #DM 249-92												
	PORTABLE 59840												
02746	T-BEND CONSTRUCTION	2951	142	0	0.0	0.0	3	94	2.8	3.8	1.1	17.5	1.2
2746	1965 CEDAR RAPIDS ASPHALT												
	PORTABLE 59937												
02747	ROBERT V. BURGGRAF COMPANY	1442	142	0	0.0	0.0	1	94	0.9	0.0	0.0	0.0	0.0
2747	91 EL JAY MODEL RC66FH, 82 ROL												
	1987 CEDAR RAPIDS 24X36 83403												
02644	DUSTCOATING, INC.	9999	142	0	0.0	0.0	3	94	0.4	0.2	1.8	1.0	0.0
2644	LOW THERMAL DESORPTION UNIT												
	PORTABLE 55359												
02748	ROBERT V. BURGGRAF COMPANY	2951	142	0	0.0	0.0	3	94	8.9	1.9	0.5	8.9	0.6
2748	72 BG DM-75 SERIAL # DM75X101												
	PORTABLE 83404												
00181	DEER LODGE COUNTY	2951	142	0	0.0	0.0	2	94	0.1	0.0	0.0	0.0	0.0
0181	? BARBER GREENE 840												
	PORTABLE 59711												
01662	BALTRUSCH, INC.	2951	142	0	0.0	0.0	2	94	26.4	0.1	0.3	0.1	0.1
1662	STNDRD STL HOT PLT SE5000 #531												
	PORTABLE 59501												
02170	FRANZ CONSTRUCTION COMPANY	2951	142	0	0.0	0.0	3	94	2.7	0.0	2.0	0.8	0.0
2170	? PIONEER BATCH PLANT #4B201												
	PORTABLE 59270												
02523	GALLATIN COUNTY RD. DEPT.	1442	142	0	0.0	0.0	2	94	1.8	0.0	0.0	0.0	0.0
2523	86 EJ CONE 1145P #42H0285												
	PORTABLE 59715												
02526	CENTURY INDUSTRIES, INC.	2951	142	0	0.0	0.0	2	94	1.4	0.0	0.0	0.0	0.0
2526	56 PNR 6' X 40' #375-DDC-120												
	PORTABLE 59457												
02527	CENTURY INDUSTRIES, INC.	2951	142	0	0.0	0.0	3	94	49.2	0.3	2.6	0.5	0.2
2527	86 AEDCO 6628 #2726												
	PORTABLE 59457												
02528	KONITZ CONTRACTING, INC.	1442	142	0	0.0	0.0	3	94	9.6	4.5	1.3	20.8	1.4
2528	58 PNR SHOPBUILT DUP #4030P871												
	PORTABLE 59457												
02529	KONITZ CONTRACTING, INC.	1442	142	0	0.0	0.0	3	94	12.8	5.4	1.6	24.8	1.7
2529	65 SYMONS CONE CRUSHER #40559												
	PORTABLE 59457												
02533	TREASURE STATE CONSTRUCTION	1442	142	0	0.0	0.0	3	94	5.9	4.6	1.4	21.3	1.4
2533	86 EL JAY 1313 CONE #42D0286												
	1992 SCREENING PLANT #42 598064027												
02534	EMPIRE SAND & GRAVEL CO.	2951	142	0	0.0	0.0	3	94	13.4	24.6	151.4	108.6	11.0
2534	80 BOEING MS-400 #569-400												

STATE: 30 MONTANA COUNTY: 777 PORTABLE SOURCE

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
02535	EMPIRE SAND & GRAVEL CO.	1442	142	0	0.0	0.0	2	94	17.4	0.0	0.0	0.0	0.0
2535	75 EL JAY CONE #489												
	1988 BARMAC ROTOPACTOR M 59103												
02537	MONTGOMERY CONSTRUCTION	3531	142	0	0.0	0.0	3	94	1.7	0.7	0.2	3.5	0.2
2537	58 CR 443 COMMNDR DUPLX #17918												
	1956 UNIVERSAL 20X36 JAW 59451												
02541	A-1 PAVING, INC.	2951	142	0	0.0	0.0	3	94	1.4	0.2	0.0	1.0	0.0
2541	88 CMI UVM 1200 DRUM MIX #110												
	PORTABLE 59901												
02542	GILMAN EXCAVATING	2951	142	0	0.0	0.0	3	94	0.4	7.2	4.4	28.2	2.8
2542	79 BG DM-65 8'X30' #DM65X247												
	PORTABLE 59701												
02543	GILMAN EXCAVATING	2951	142	0	0.0	0.0	3	94	2.9	8.4	7.1	28.4	3.8
2543	83 BG DM-71 9'X36' #DM71X403												
	PORTABLE 59701												
02545	GILMAN EXCAVATING	1442	142	0	0.0	0.0	3	94	14.1	9.4	2.9	43.6	2.9
2545	88 CR 22 X 48 JAW #40915												
	1986 EL JAY 54" CONE #58 59701												
02551	WEAVER GRAVEL	3531	142	0	0.0	0.0	3	94	1.3	0.7	0.2	3.5	0.2
2551	65 AW 101SE ROLL 20X30 #464959												
	PORTABLE 59912												
02552	JOHNSON BROTHERS CONTRACTING	1442	142	0	0.0	0.0	2	94	0.1	0.0	0.0	0.2	0.0
2552	50 PNR 35S, #35SH4-JAW												
	PORTABLE 59802												
02555	STS GRAVEL	1442	142	0	0.0	0.0	2	94	0.9	0.0	0.0	0.0	0.0
2555	46 CEDAR RAPIDS TANDEM #25440												
	PORTABLE 59047												
02559	FIKE CRUSHING	1442	142	0	0.0	0.0	3	94	12.7	2.2	0.7	10.5	0.7
2559	78 EL JAY 36" #04-CV												
	PORTABLE 58341												
02561	RIVERSIDE CONTRACTING	2951	142	0	0.0	0.0	4	94	54.2	4.2	23.4	7.2	2.5
2561	83 CEDAR RAPIDS 8828 #ADM28852												
	PORTABLE 59801												
02564	BLAINNIK CONSTRUCTION, INC.	2951	142	0	0.0	0.0	3	94	3.2	1.7	0.5	7.9	0.5
2564	88 ADM S1B6026P DRUM #DM17388												
	PORTABLE 59840												
02566	EMPIRE SAND & GRAVEL CO.	1442	142	0	0.0	0.0	2	94	10.2	0.0	0.0	0.0	0.0
2566	88 TORGESON HOR IMPACT #CHX-14												
	1978 TELSMITH JAW #1768 59103												
02569	PORTABLE PAVERS, INC.	2951	142	0	0.0	0.0	3	94	0.9	0.8	24.4	3.5	0.0
2569	86 BOEING 300R #654-4												
	PORTABLE 593010368												
02570	FIGGINS SAND & GRAVEL,INC	3531	142	0	0.0	0.0	2	94	9.6	0.0	0.0	0.0	0.0
2570	63 CR 10X36 JAW CRUSHER #24668												
	1985 BARMAC MII IMPACT C 59715												
02572	WOODRING'S CONSTRUCTION	1442	142	0	0.0	0.0	1	94	0.1	0.0	0.0	0.0	0.0
2572	43 CR DUPLEX #7871 AND #2152												
	PORTABLE 59103												

STATE: 30 MONTANA COUNTY: 777 PORTABLE SOURCE

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
02574	MIDLAND O'LEARY, INC. (JTL GROUP)	2951	142	0	0.0	0.0	2	94	4.1	2.0	4.0	1.9	1.5
2574	89 BMG 30R20 DRUM MIX #689												
	PORTABLE 59107												
02576	PRINCE, INC.	3531	142	0	0.0	0.0	3	94	11.1	6.6	2.0	30.4	2.0
2576	69 EL JAY 54" CONE #41F0678												
	PORTABLE 59327												
02577	FISHER SAND & GRAVEL	1442	142	0	0.0	0.0	2	94	0.6	0.0	0.0	0.0	0.0
2577	86 PIONEER 20 X 36 #KNWN-3306												
	PORTABLE 58601												
02581	FISHER SAND & GRAVEL	1442	142	0	0.0	0.0	2	94	0.1	0.0	0.0	0.0	0.0
2581	78 KUEKEN20X36 90 #909687 1367												
	PORTABLE 58601												
02585	FISHER SAND & GRAVEL	1442	142	0	0.0	0.0	2	94	3.6	0.0	0.0	0.0	0.0
2585	86 AC MODEJ 500 #53009												
	PORTABLE 59330												
02587	FISHER SAND & GRAVEL	1442	142	0	0.0	0.0	2	94	1.2	0.0	0.0	0.0	0.0
2587	88 BARMAC 39"9600 #CP31462888												
	PORTABLE 58601												
02590	HK CONTRACTORS, INC.	2951	142	0	0.0	0.0	3	94	0.7	0.3	7.9	3.3	0.0
2590	77 BG DM-65 #DM65X168												
	PORTABLE 83405												
02596	H.L. OSTERMILLER CONSTRUCTION INC.	2951	142	12	698.5	5080.5	3	94	0.9	0.2	0.0	0.9	0.0
2596	88 ACS/AEDCO 6628 #3514-6628												
	PORTABLE 59105												
02597	FRANCIS MUGGLI, INC.	3531	142	0	0.0	0.0	3	94	1.6	0.0	2.8	0.2	0.6
2597	46 DIAMOND JAW #2207												
	1947 SYMONS 4' STANDARD 59230												
02598	CENTENNIAL CONCRETE, INC.	1442	142	0	0.0	0.0	3	94	0.5	0.5	0.1	2.3	0.1
2598	52 CR MASTER TANDEM #12768												
	40" X 22" ROLL CRUSHER 59701												
02605	SHUMAKER TRUCKING & EXCAV	1442	142	0	0.0	0.0	3	94	0.4	0.0	0.0	0.0	0.0
2605	85 HUMBOLT WEDAG IMP #46201281												
	PORTABLE 59403												
02615	LHC, INC.	1442	142	0	0.0	0.0	3	94	6.3	0.0	0.0	0.0	0.0
2615	1958 UNIVERSAL GRAVEL CRUSHER												
	PORTABLE, S#526X42 59904												
02620	BLAHNIK CONSTRUCTION, INC	1442	142	0	0.0	0.0	3	94	2.2	0.1	0.0	0.4	0.0
2620	74 PNR 50 VE ROLL #50-VE-216												
	PORTABLE 59840												
02623	SCHELLINGER CONSTRUCTION CO	1442	142	0	0.0	0.0	3	94	9.7	4.5	1.3	20.8	1.4
2623	76 PNR 50 VE DUPLEX #50-VE-217												
	PORTABLE/GRAVEL CRUSHER 59912												
02624	SCHELLINGER CONSTRUCTION	1442	142	0	0.0	0.0	3	94	10.8	7.4	2.2	34.4	2.3
2624	76 PNR 50 VE DUPLES #50-VE-240												
	PORTABLE 59912												
02626	PIONEER CONCRETE AND FUEL, INC.	3531	142	0	0.0	0.0	2	94	1.4	0.7	0.2	3.2	0.2
2626	92 PNR JAW CRUSHER #KNWN-3911												
	PORTABLE 59901												

STATE: 30 MONTANA COUNTY: 777 PORTABLE SOURCE

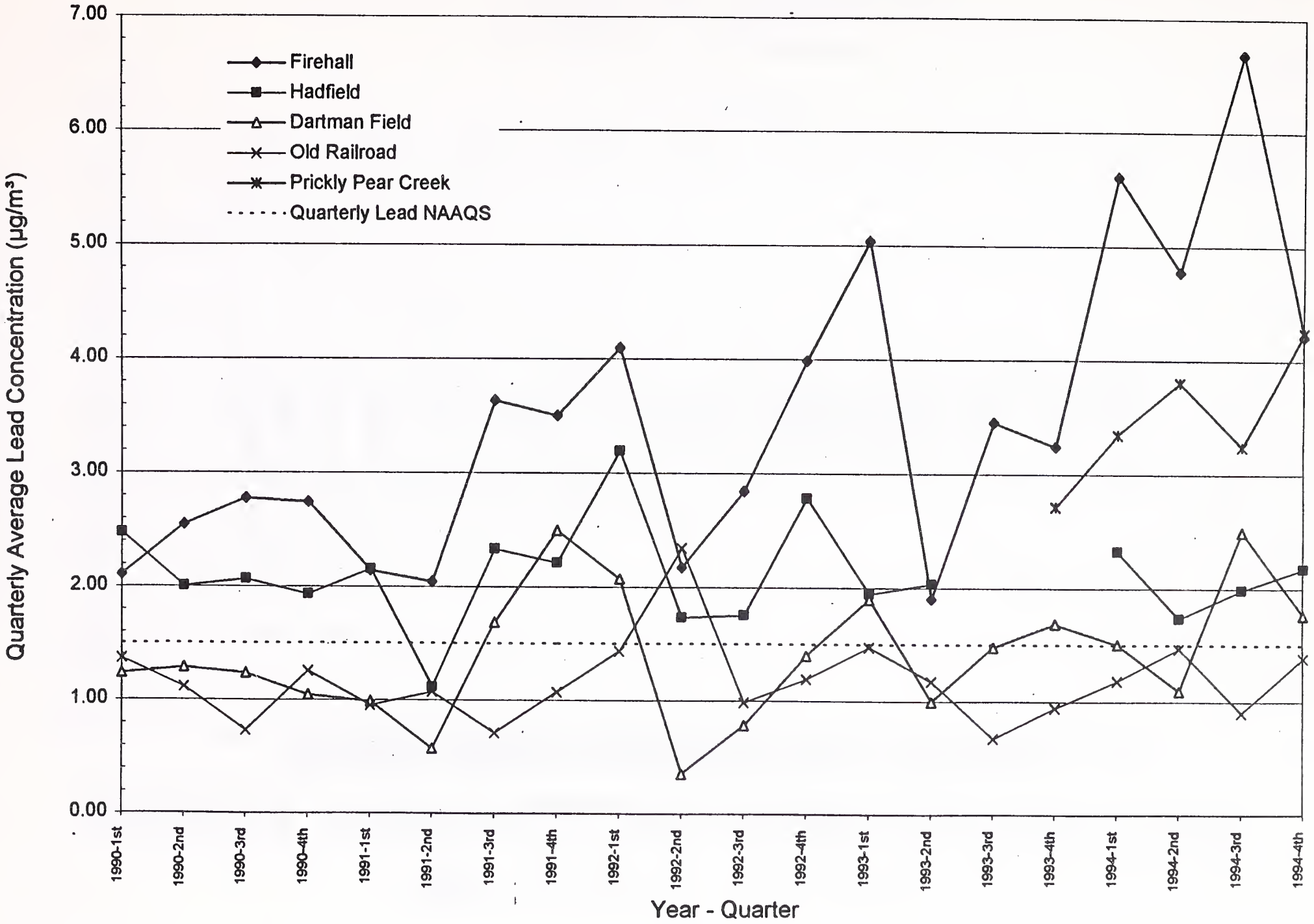
PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
02641	CENTURY INDUSTRIES, INC.	2951	142	0	0.0	0.0	3	94	1.4	0.6	7.7	2.9	0.1
2641	85 ADM #S7228P #DM-123-85												
	PORTABLE 59457												
02652	PURCELL CONSTRUCTION	3531	142	0	0.0	0.0	3	94	1.7	0.2	0.0	1.1	0.0
2652	80 CR 443 COMMNDR #1745425640												
	PORTABLE 59068												
02658	RIVERSIDE CONTRACTING	1442	142	0	0.0	0.0	4	94	30.3	2.3	12.9	3.8	1.4
2658	83 CR 8828 DRUM DRYER #38848												
	PORTABLE 59801												
02659	FIGGINS SAND & GRAVEL,INC	3531	142	0	0.0	0.0	2	94	1.2	0.0	0.0	0.0	0.0
2659	69 PNR 1036 JAW #CP-40-69												
	PORTABLE 59715												
02660	LONE MOUNTAIN ASPHALT	2951	142	0	0.0	0.0	3	94	0.9	1.8	0.5	8.4	0.5
2660	60 STANSTEEL TM-15B #472												
	PORTABLE 59105												
02661	KEELAND & SONS GRAVEL	1442	142	0	0.0	0.0	3	94	0.3	0.1	0.0	0.4	0.0
2661	47 PIONEER 10X36 JAW #CP40-100												
	40 X 22 ROLL CRUSHER CP4 59101												
02673	HELENA SAND & GRAVEL	1442	142	0	0.0	0.0	2	94	6.1	0.0	0.0	0.0	0.0
2673	90 TORGERSON IMPACT #CX120												
	PORTABLE 59604												
02675	CONDA MINING, INC.	3531	142	0	0.0	0.0	3	94	0.7	0.5	0.1	2.3	0.1
2675	88 UNIV 130/150 IMPCTR 619X104												
	PORTABLE 59807												
02678	KEM READY MIX	3531	142	0	0.0	0.0	2	94	1.2	0.0	0.0	0.0	0.0
2678	59 CR COMMANDER #19141												
	1947 UNIVERSAL RBSL #201 59061												
02680	WELLES, A. M.	1442	142	0	0.0	0.0	3	94	8.7	3.0	0.9	13.8	0.9
2680	79 PNR 50VE#50VE234 DUPLEX JAW												
	PORTABLE 59745												
02681	PARK COUNTY	3531	142	0	0.0	0.0	2	94	0.2	0.0	0.0	0.0	0.0
2681	78 TEJSMITH 12X36 JAW #1355H												
	PORTABLE 59047												
02684	FISHER SAND & GRAVEL	1442	142	0	0.0	0.0	2	94	1.3	0.0	0.0	0.0	0.0
2684	86 BARMAC IMPACT #584-82-6												
	PORTABLE 58601												
02685	FISHER SAND & GRAVEL	1442	142	0	0.0	0.0	2	94	0.1	0.0	0.0	0.0	0.0
2685	85 SPOKANE IMPACT #66-8155												
	PORTABLE 58601												
02690	H.L. OSTERMILLER CONSTRUCTION	1442	142	12	698.5	5080.5	3	94	3.1	0.1	0.0	0.7	0.0
2690	52 CR MASTER TANDEM #13013												
	PORTABLE 59105												
02693	WIBAUX COUNTY	3531	142	0	0.0	0.0	3	94	0.5	0.0	0.0	0.2	0.0
2693	60 PNR JAW CRUSHER #CP-18-1												
	PORTABLE 59353												
02695	BILL DENGEL CONSTRUCTION	3531	142	0	0.0	0.0	3	94	10.1	1.2	0.3	5.8	0.4
2695	90 EL JAY, #34 C1690												
	1986 EL JAY CONE CRUSHER 59702												

STATE: 30 MONTANA COUNTY: 777 PORTABLE SOURCE

PLANT	NAME AND ADDRESS	SIC	AQC	UTZ	UTMH	UTMV	TOTAL # OF POINTS	YR	PM10	CO	SO2	NO2	VOC
02696	CASINO CREEK CONCRETE	3531	142	0	0.0	0.0	2	94	1.2	0.0	0.0	0.0	0.0
2696	50 DIAMOND JAW CRUSHER												
	PORTABLE 59457												
02751	CONDA MINING, INC.	1442	142	0	0.0	0.0	3	94	0.3	0.2	0.0	1.1	0.0
2751	76 PNR 35X46 JAW S/N 3546-139												
	PORTABLE 59807												
02586	FISHER SAND & GRAVEL	1442	142	0	0.0	0.0	2	94	0.5	0.0	0.0	0.0	0.0
2586	86 AC MODEJ 500 #C53011												
	PORTABLE 58601												
02622	SCHELLINGER CONSTRUCTION	3531	142	0	0.0	0.0	3	94	6.7	5.8	1.7	26.7	1.8
2622	76 PIONEER #153-PRV-217												
	PORTABLE 59912												
02665	MINERAL COUNTY ROAD DEPT.	2951	142	0	0.0	0.0	3	94	0.1	0.0	0.0	0.2	0.0
2665	69 WYLIE 3140 BATCH #16274												
	PORTABLE 59872												
02689	MC ELROY & WILKEN, INC.	3531	142	0	0.0	0.0	2	94	7.5	0.0	0.0	0.0	0.0
2689	86 KHD HMBLT WEDAG B #4620128												
	1988 BAROMAC IMPACT, MOD 59901												
02703	N & R BUNN GRAVEL	3531	142	0	0.0	0.0	3	94	0.1	0.0	0.0	0.2	0.0
2703	58 CR 443 JAW & ROLL #19291												
	PORTABLE 59457												
02826	THOMPSON EXCAVATING	1442	142	0	0.0	0.0	2	94	0.6	0.0	0.0	0.0	0.0
2826	1994 SHAKER SCREEN CONVEYOR												
	ASSOCIATED EQUIPMENT 59487												
02775	RIVERSIDE CONTRACTING INC.	2951	142	0	0.0	0.0	3	94	54.2	12.5	75.4	50.2	5.7
2775	1993 BITUMA UTRA DRUM 400												
	PORTABLE 59801												
02788	PIONEER READY MIX	1442	142	0	0.0	0.0	2	94	11.6	0.0	0.0	0.0	0.0
2788	1989 IMPACT												
	PORTABLE/'85 V SHAFT IMP 59715												
02794	PIONEER READY MIX	1442	142	0	0.0	0.0	3	94	0.6	0.2	0.0	0.9	0.0
2794	1993 ISC VSI CRUSHER												
	PORTABLE/'92 EL-RUSS JAW 59715												
02779	THE PIT	1442	142	0	0.0	0.0	2	94	0.3	0.0	0.0	0.0	0.0
2779	1960 CEDAR RAPIDS JAW/ROLL CR												
	PORTABLE 59917												
02774	CENTENNIAL CONCRETE, INC.	1442	142	0	0.0	0.0	3	94	0.7	0.4	0.1	2.1	0.1
2774	1964 CEDAR RAPIDS JAW												
	PORTABLE 59701												
02776	CLARK FORK CONCRETE	1442	142	0	0.0	0.0	2	94	0.5	0.0	0.0	0.0	0.0
2776	PORTABLE CRUSHERS												
	THOMPSON FALLS 59873												
02795	CLARK FORK CONCRETE	1771	142	0	0.0	0.0	2	94	1.0	0.0	0.0	0.0	0.0
2795	1963 ROSS UNI PLANT SN 7538												
	PORTABLE 59873												
02799	CENTRAL PRE-MIX CONCRETE CO	1771	142	0	0.0	0.0	2	94	0.1	0.0	0.0	0.0	0.0
2799	1971 REX MODELJS-111-30RM												
	1991 EL JAY, #54-6-16-10 59457												

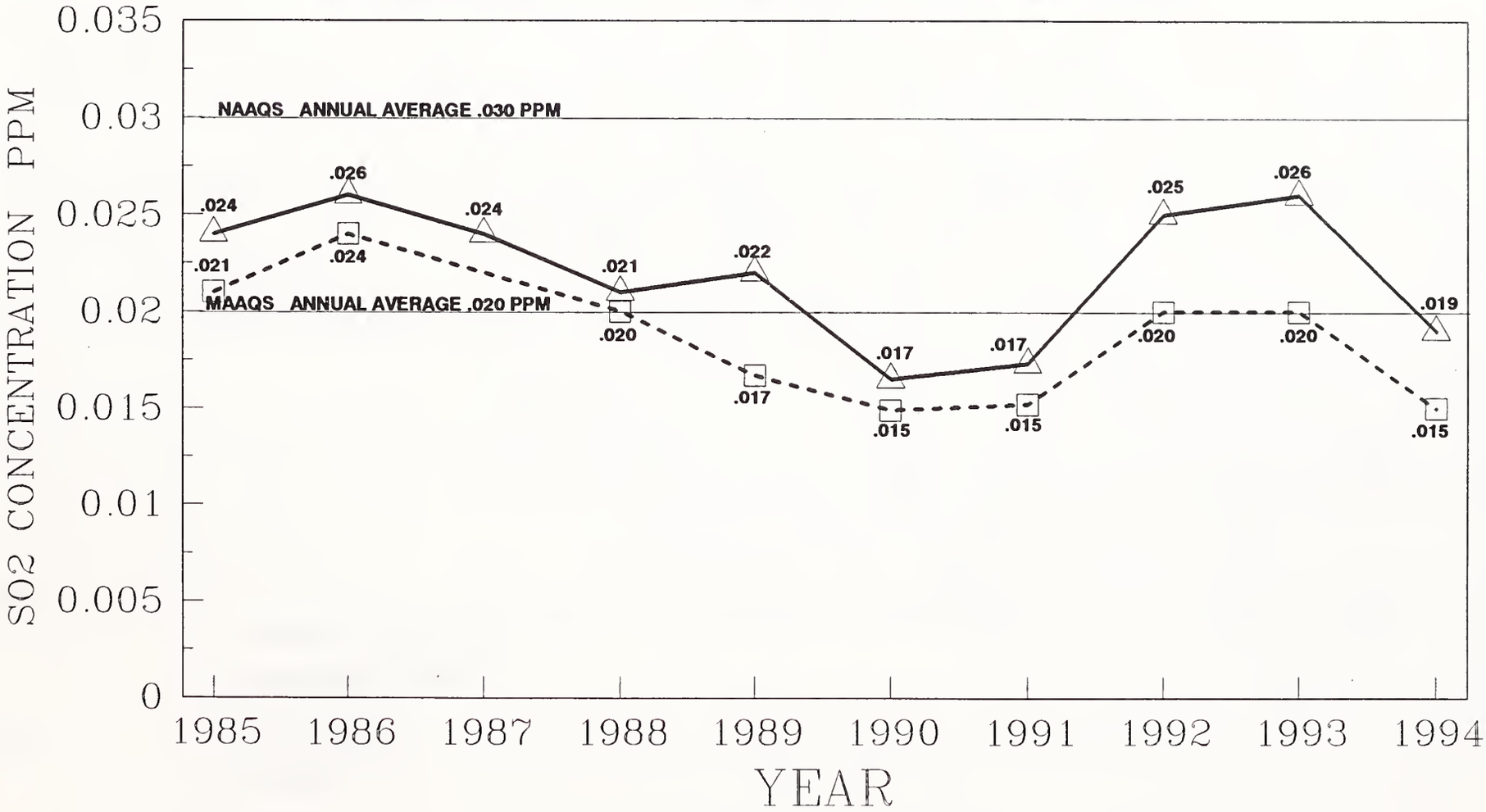
APPENDIX C: HISTORICAL DATA SUMMARIES

East Helena Monitoring Sites Quarterly Lead Concentrations (µg/m³) for the Years 1990-1994



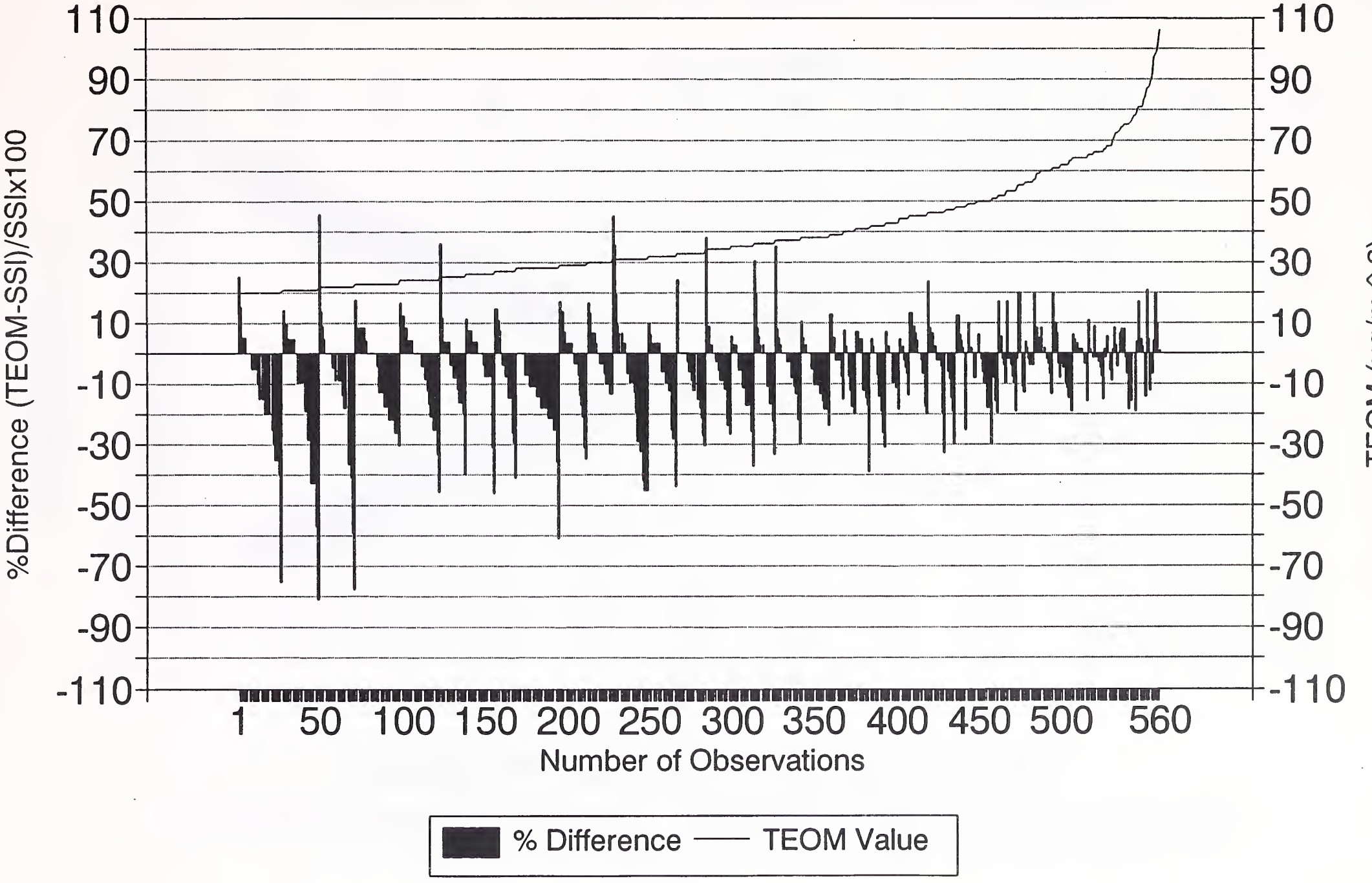
ANNUAL AVERAGE S02 CONCENTRATIONS

Coburn Road & Lockwood Park, Billings



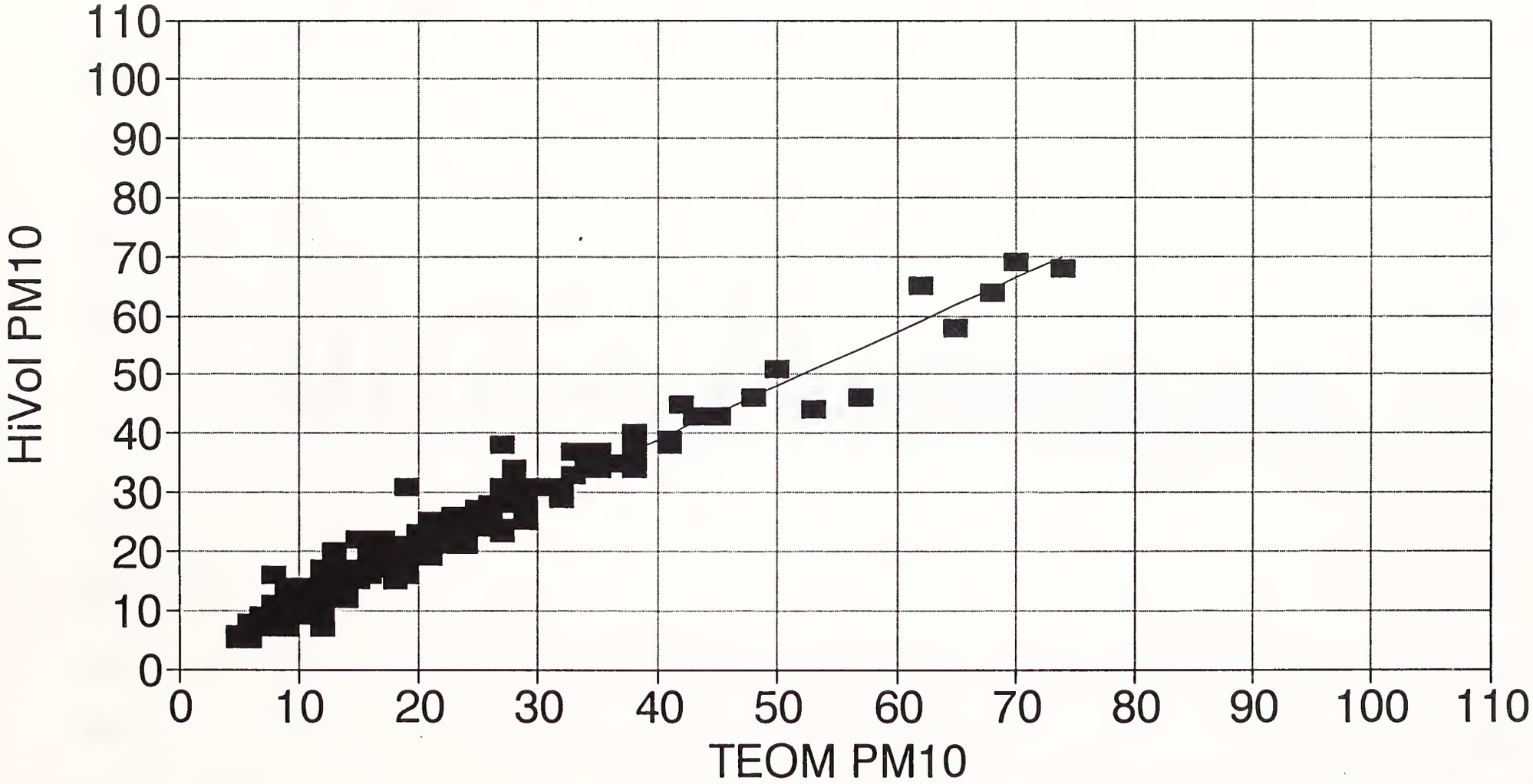
The Lockwood Park Site did not operate in 1987.

Montana TEOM vs. HiVol
Overall % Difference



Kalispell-E. Maint. Bldg. (30-029-1018)

TEOM vs. SSI/HiVol (10/93-3/95)

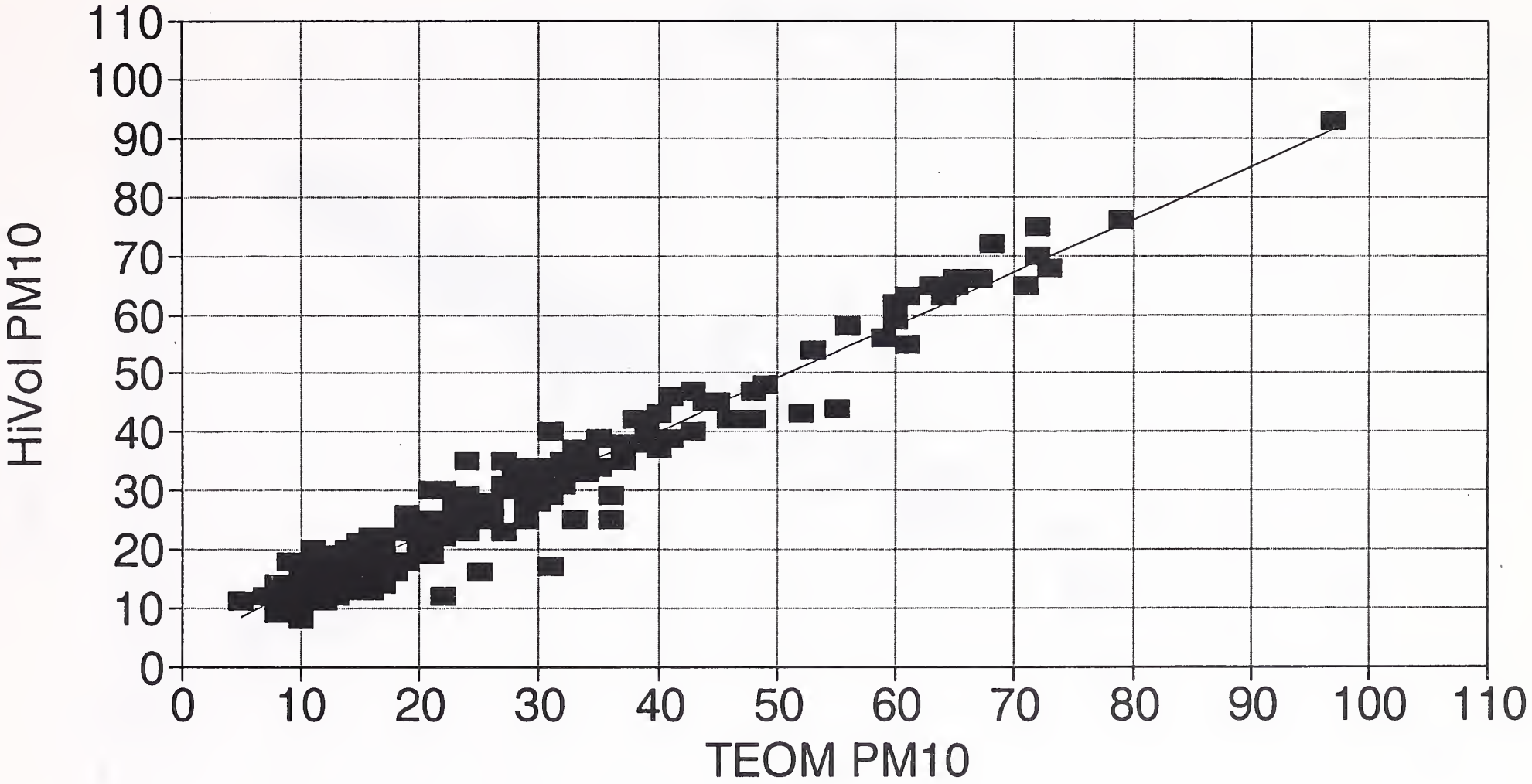


HiVol PM10=(0.913)(TEOM PM10)+2.487 , r=0.976

Observed Data — Linear Regression

Helena-Lincoln School (30-049-0018)

Overall TEOM vs. HiVol Comparison

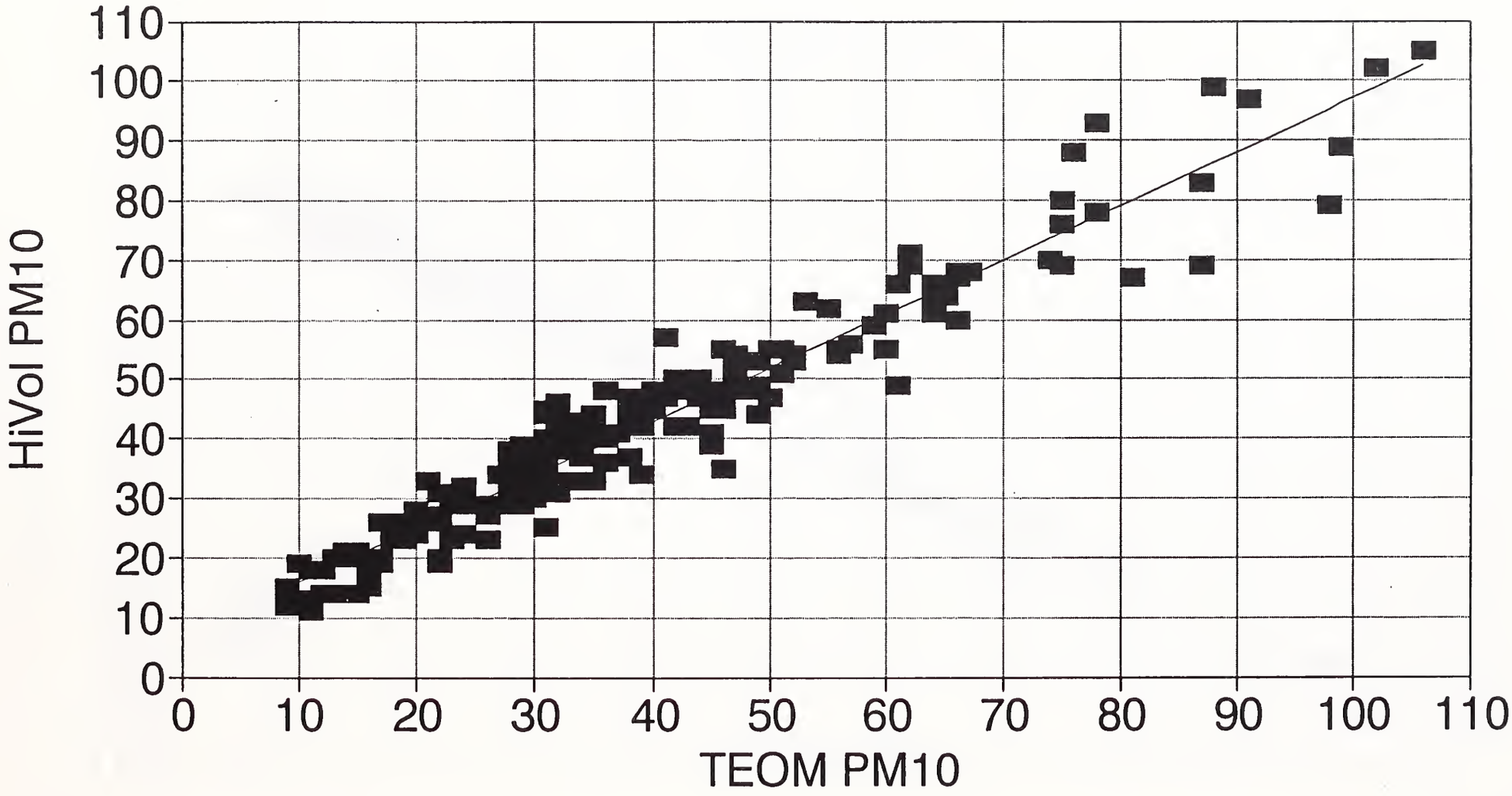


HiVol PM10=(0.902)(TEOM PM10)+4.056 , r=0.973

Observed Data — Linear Regression

Libby-Courthouse Annex (30-053-0018)

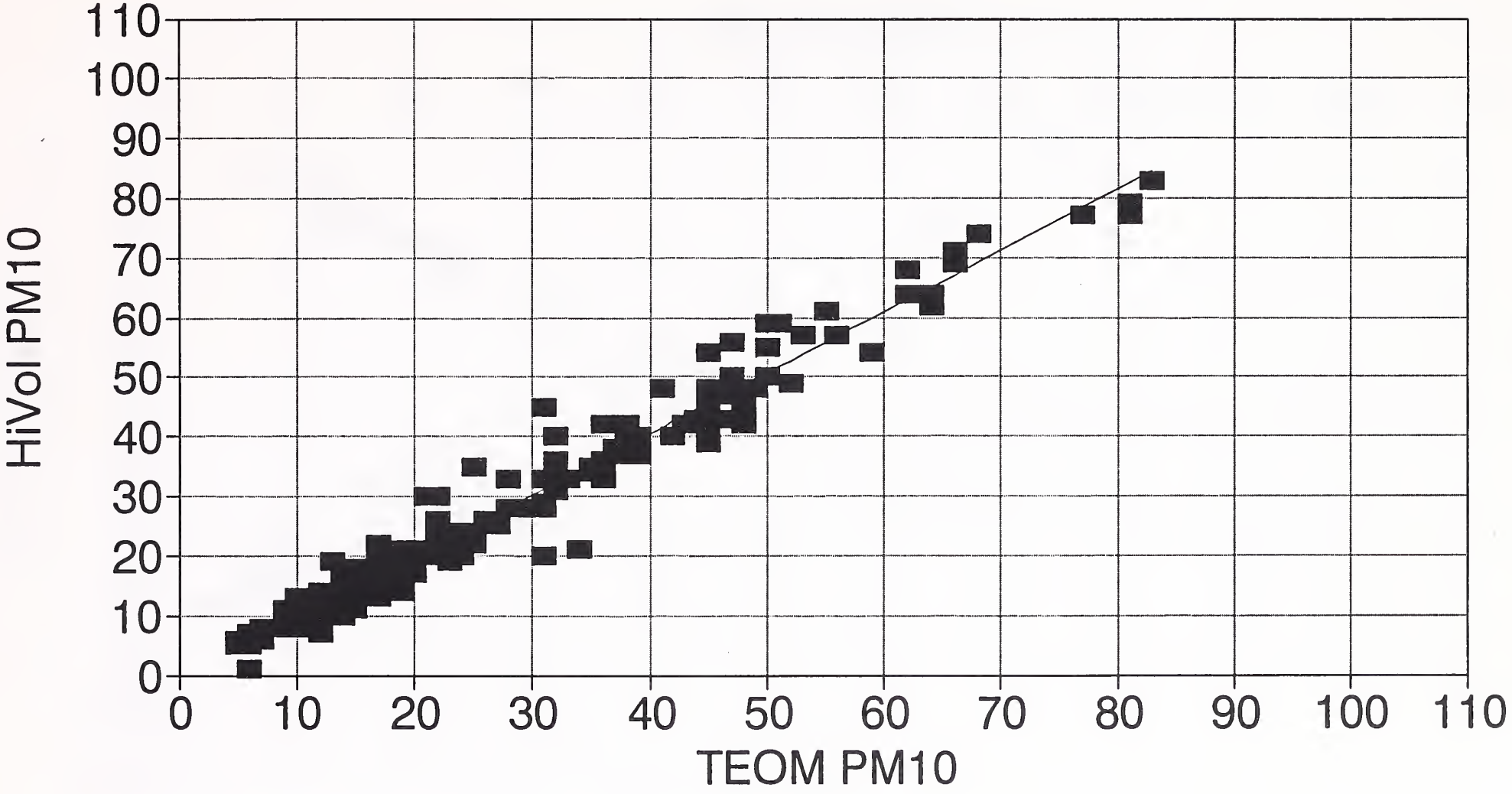
TEOM vs. SSI/HiVol (10/93-3/95)



HiVol PM10=(0.903)(TEOM PM10)+6.813 , r=0.965

Observed Data — Linear Regression

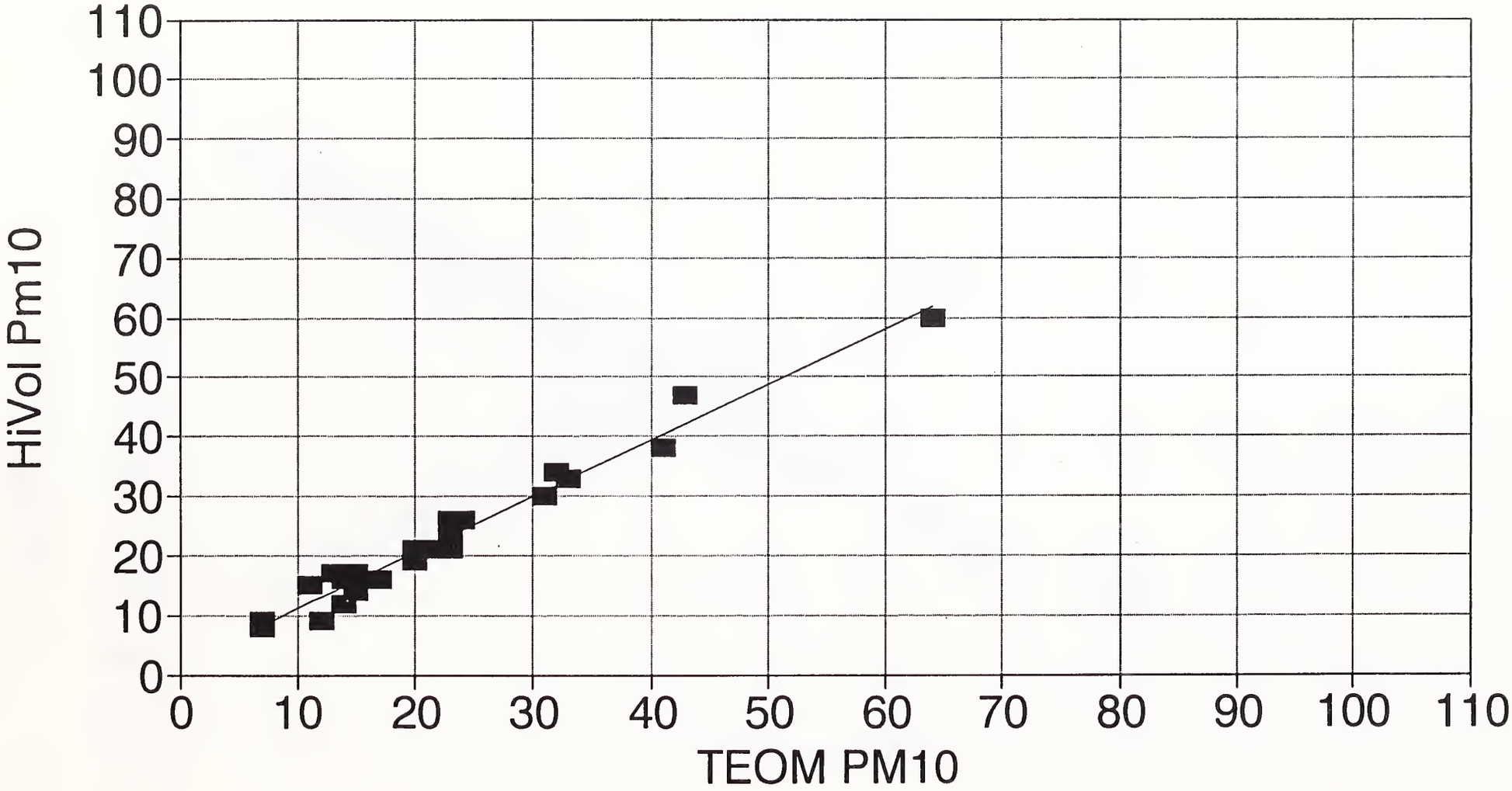
Missoula-Boyd Park (30-063-0024)
TEOM vs. SSI/HiVol (10/94-3/95)



HiVol PM10=(1.028)(TEOM PM10)-0.678 , r=0.980

Observed Data — Linear Regression

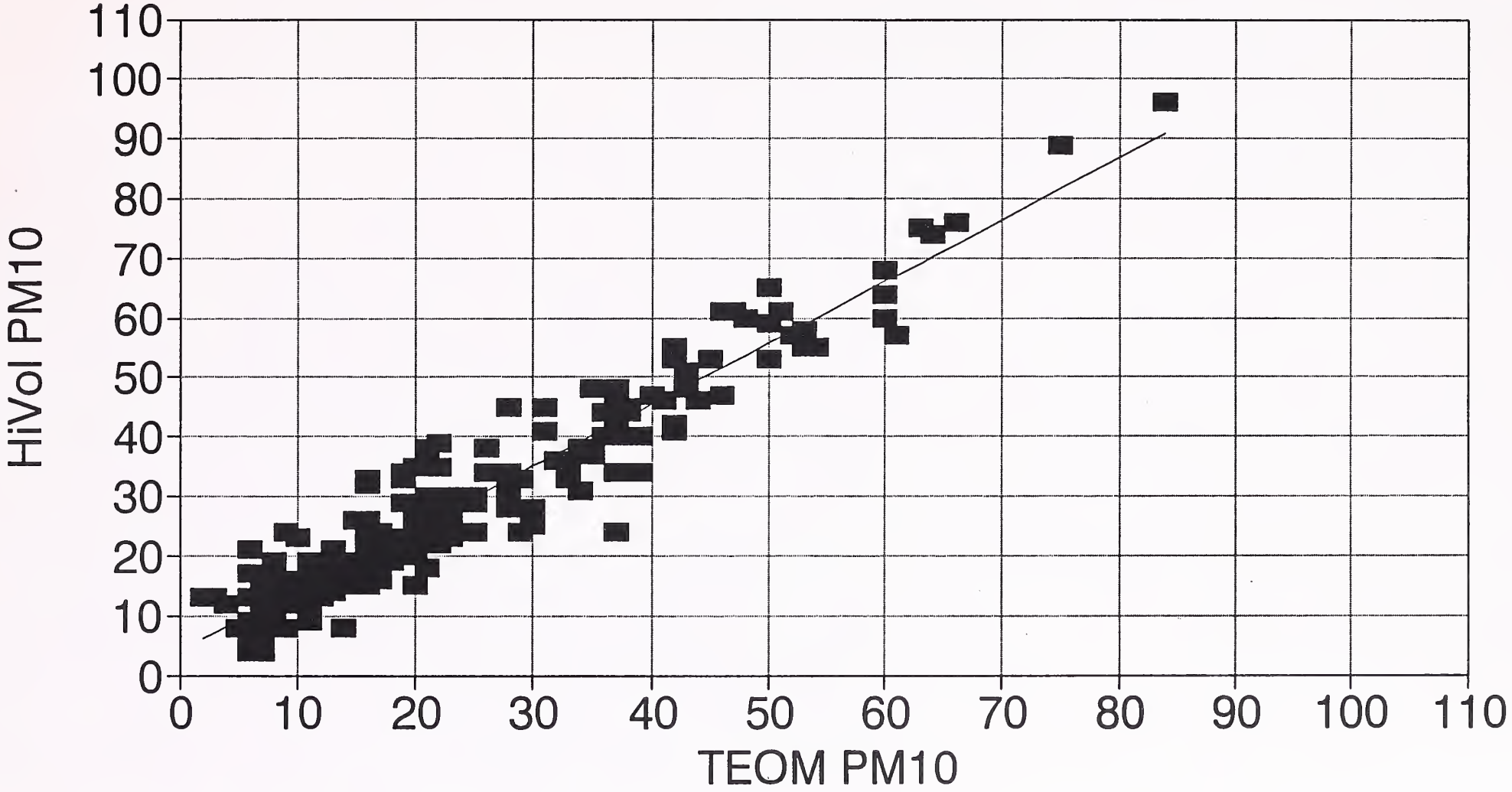
Stevensville Ranger Sta. (30-081-0003)
USFS-TEOM vs. SSI/HiVol (8/94-3/95)



HiVol PM10=(0.941)(TEOM PM10)+1.719 , r=0.984

■ Observed Data —— Linear Regression

Butte-Greeley School (30-093-0005)
TEOM vs. SSI/HiVol (8/93-3/95)



HiVol PM10=(1.035)(TEOM PM10)+3.978 , r=0.953

Observed Data — Linear Regression